

APPENDIX D

Material Characterization and Testing

APPENDIX D: Material Characterization and Testing

D.1 Radiological Measurements

Borrow materials were addressed for the presence of radioactivity to ensure that borrow materials do not exceed the radioactivity levels (Ra-226 concentration and gamma radiation fields) that would be present on the remediated RWPR.

Complete soil results are provided in Appendix G; however, a summary of Ra-226 concentrations are provided in the following table. The samples from VHCC road bed material tended to have higher Ra-226 concentrations that approached the clean-up criterion of 2.24pCi/g and had external gamma radiations levels higher the gamma radiation cut-off established for the remediated RPWR. On this basis, these naturally occurring materials from the East Ready Mix (ERM) site were not considered suitable for use in RWPR restoration.

Table D1-1 Summary of Ra-226 Concentrations (pCi/g) in Borrow Materials

Material	Number	Mean	Minimum	Maximum
VHCC	5	1.6	1.3	2.0
ERM	4	1.4	1.0	1.7
East Pit	10	0.64	0.3	0.9
GSG	5	0.63	0.54	0.76
GSG RB	2	0.85	0.7	1
GSG 1inch	1	0.56		

The McConnel East Pit samples had Ra-226 concentrations below the RWPR background level of 1.0pCi/g and this material was used as fill. The road base material was from Gallup Sand and Gravel (GSG) with Ra-226 concentrations at or below the 1.0pCi/g background. The GSG materials were limestone based and the 1 inch granular material had a similar concentration.

LABORATORY COMPACTION CHARACTERISTICS OF SOIL REPORT

Report Number: AG121036.0001

Service Date: 11/01/12

Report Date: 11/01/12

Terracon

#4 A CR 3499

Flora Vista, NM 87415

505-334-2900

Client

CRA Services
Attn: Don Osterhout
4141 Davis Creek Court
Kalamazoo, MI 49001

Project

Church Rock Road
McKinley County
Gallup, NM

Project Number AG121036

Material Information

Source of Material: Reboth Pit

Proposed Use: Roadway Subgrade

Sample Information

Sample Date: 11/01/12

Sampled By: Client

Sample Location: Reboth Pit

Sample Description: Silty Sand

Laboratory Test Data

Test Procedure: ASTM D698

Test Method: Method B

Sample Preparation: Wet

Rammer Type: Mechanical

Oversized Particles (%): 20.0

Moisture (%): 1.0

Sieve for Oversize Fraction: 3/8

Assumed Bulk Specific Gravity
of Oversized Particles: 2.7

Corrected for Oversized Particles (ASTM D4718)

Maximum Dry Unit Weight (pcf): 132.4

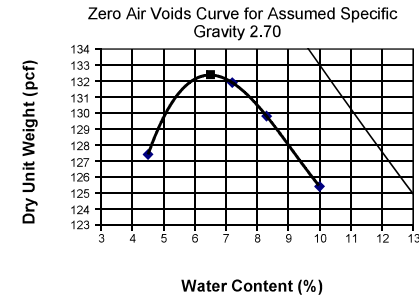
Optimum Water Content (%): 6.5

Uncorrected Values

Maximum Dry Unit Weight (pcf): 125.6

Optimum Water Content (%): 7.9

	Result	Specifications
Liquid Limit:		
Plastic Limit:		
Plasticity Index:		
In-Place Moisture (%):	4.5	
Passing 3/8" (%):	80.0	
Passing #4 (%):	72.0	
USCS:	SM	



Comments:

Services: Performed Standard Proctor Test (ASTM D- 698)

Terracon Rep.: Dempsey, Wilbert

Reported To:

Contractor: CRA Services

Report Distribution:

(1) CRA Services, scorning@croworld.com

(1) Terracon Consultants, Inc.,
wdempsey@terracon.com

(1) Terracon Consultants, Inc.,
zstjean@terracon.com

Reviewed By:

Zachary St Jean
Office Manager

Test Methods: ASTM D698

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

CR09086, Rev 11, Rev. 0

Terracon

#4 A CR3499
Flora Vista, NM 87415
505.334.2900

Project

Church Rock Road
McKinley County
Gallup, NM

Project No. AG121036 Sample No.

Sample Description: Well Graded Gravel w/ Silt & Sand
Sample Description (USCS) (GW-GM)

Physical Properties

Laboratory Testing

Moisture Content-Soil ASTM D2216. %

Results

19

Spec 5.

1

Pass/Fail

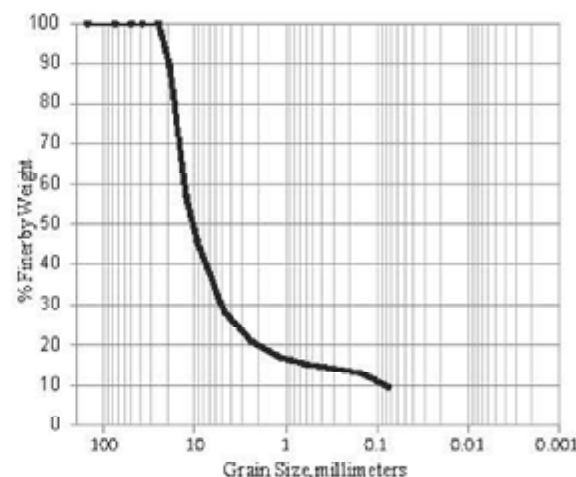
1

Sieve Analysis

ASTM C117 & C130

Sieve Size	Percent Passing	Specifications		Pass/Fail
		Min.	Max.	
6 in	100			
3 in	100			
2 in	100			
1-1/2 in	100			
1 in	100	100		Pass
3/4 in	89	80	100	Pass
1/2 in	57			
3/8 in	46			
No. 4	28	30	60	Fail
No. 10	21	20	45	Pass
No. 16	17			
No. 30	15			
No. 50	14			
No. 100	13			
No. 200	9.6	3.0	10.0	Pass

Grain Size Distribution Curve



Services:

Terracon Rep: Dempsey, Wilbert

Reported To:

Contractor: CRA Services

Report Distribution

(1) Terracon Consultants, Inc.

(1) Terracon Consultants, Inc.,

Lunch/NC:

Reviewed By:

Zachary St Jean
Office Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

SAMPLE PICK-UP REPORT

Report Number: AG121036.0003
Service Date: 11/05/12
Report Date: 11/07/12

Terracon

#4 A CR 3499
Flora Vista, NM 87415
505-334-2900

Client

CRA Services
Attn: Don Osterhout
4141 Davis Creek Court
Kalamazoo, MI 49001

Project

Church Rock Road
McKinley County
Gallup, NM

Project Number: AG121036

Services Requested By: Steve Corning with CRA Services

Material Type: 1-inch minus base course

Material Source: Import

Location Sample Collected: Thoreau Pit

The soil sample collected was transported to our office for laboratory testing.

Testing Requested: Proctor, sieve analysis, Atterberg limits.

Services:

Terracon Rep.: Erica Begay

Reported To:

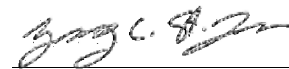
Contractor: CRA Services

Report Distribution:

(1) CRA Services,
scomring@craworld.com
(1) Terracon Consultants, Inc.,
zcsjjean@terracon.com

(1) Terracon Consultants, Inc.,
wdempsey@terracon.com

Reviewed By:



Zachary St Jean
Office Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

LABORATORY COMPACTION CHARACTERISTICS OF SOIL REPORT

Report Number: AG121036.0004
Service Date: 11/06/12
Report Date: 11/07/12

Terracon

#4 A CR 3499
Flora Vista, NM 87415
505-334-2900

Client

CRA Services
Attn: Don Osterhout
4141 Davis Creek Court
Kalamazoo, MI 49001

Project

Church Rock Road
McKinley County
Gallup, NM

Project Number AG121036

Material Information

Source of Material: Rehoboth Pit
Proposed Use: Subgrade

Sample Information

Sample Date: 11/05/12
Sampled By: Dempsey, Wilbert
Sample Location: On-Site Stockpile

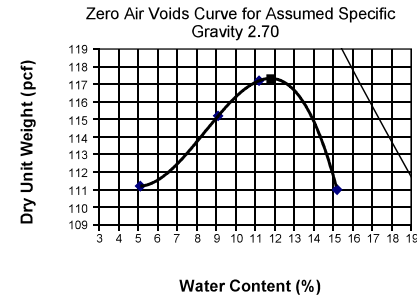
Sample Description: Silty Sand with Gravel

Laboratory Test Data

Test Procedure: ASTM D698
Test Method: Method A
Sample Preparation: Wet
Rammer Type: Mechanical
Maximum Dry Unit Weight (pcf): 117.3
Optimum Water Content (%): 11.8

	Result	Specifications
Liquid Limit:		
Plastic Limit:		
Plasticity Index:		
In-Place Moisture (%):	3.0	
Passing #4 (%):	95.5	

USCS: SM



Comments:

Services: Performed Standard Proctor Test (ASTM D- 698)

Terracon Rep.: Dempsey, Wilbert

Reported To:

Contractor: CRA Services

Report Distribution:

(1) CRA Services, scorning@cravorld.com

(1) Terracon Consultants, Inc.,
zstjean@terracon.com

(1) Terracon Consultants, Inc.,
wdempsey@terracon.com

Reviewed By:

Zachary St Jean
Office Manager

Test Methods: ASTM D698

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

CR09086, 8-27-11, Rev. 0

LABORATORY COMPACTION CHARACTERISTICS OF SOIL REPORT

Report Number: AG121036.0005
Service Date: 11/08/12
Report Date: 11/15/12 Revision 1 - Proctor

Terracon

#4 A CR 3499
Flora Vista, NM 87415
505-334-2900

Client

CRA Services
Attn: Don Osterhout
4141 Davis Creek Court
Kalamazoo, MI 49001

Project

Church Rock Road
McKinley County
Gallup, NM

Project Number AG121036

Material Information

Source of Material: Thoreau Pit
Proposed Use: Roadway Aggregate Base Course

Sample Information

Sample Date: 11/06/12
Sampled By: Erica Begay
Sample Location: Thoreau Pit

Sample Description: Well Graded Gravel with Silt and Sand

Laboratory Test Data

Test Procedure: ASTM D698
Test Method: Method C
Sample Preparation: Wet
Rammer Type: Mechanical

Oversized Particles (%): 8.0
Moisture (%): 1.0
Sieve for Oversize Fraction: 3/4

Assumed Bulk Specific Gravity of Oversized Particles: 2.7

Corrected for Oversized Particles (ASTM D4718)

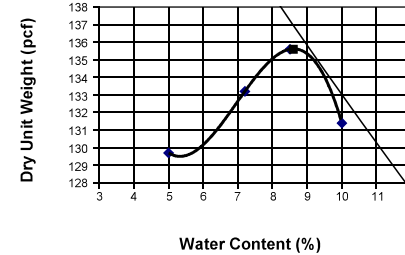
Maximum Dry Unit Weight (pcf): 135.6
Optimum Water Content (%): 8.6

Uncorrected Values

Maximum Dry Unit Weight (pcf): 133.3
Optimum Water Content (%): 9.3

	Result	Specifications
Liquid Limit:	Non-plastic	Maximum 25
Plastic Limit:	Non-plastic	
Plasticity Index:	Non-plastic	Maximum 6
In-Place Moisture (%):	1.9	
Passing 3/4" (%):	92.0	
Passing 3/8" (%):	49.0	
USCS:	GW	

Zero Air Voids Curve for Assumed Specific Gravity 2.70



Comments:

Services: Performed Standard Proctor Test (ASTM D698), Seive Analysis (ASTM C136) and Liquid Limit, Plastic Limit (ASTM D4318)

Terracon Rep.: Erica Begay

Reported To:

Contractor: CRA Services

Report Distribution:

(1) CRA Services, scorning@cravorld.com

(1) Terracon Consultants, Inc.,
zstjean@terracon.com

(1) Terracon Consultants, Inc.,
wdempsey@terracon.com

Reviewed By:

Zachary St Jean
Office Manager

Test Methods: ASTM D698

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

CR09086, Rev 11, Rev. 0

LABORATORY CHARACTERISTICS OF SOILS & AGGREGATES

Report Number: AG121036.0005
Service Date: 11/08/12
Report Date: 11/15/12 Revision 1 - P1
Task:

Client

CRA Services
 Attn: Don Osterhout
 4141 Davis Creek Court
 Kalamazoo, MI 49001

Project

Church Rock Road
 McKinley County
 Gallup, NM

Project No. AG121036 Sample No.

Sample Location: Thoreau Pit

Material Source: Gallup Sand and Gravel

Intended Use: 1-inch minus Aggregate Roadbase

Sample Description: Well Graded Gravel with Silt and Sand

Sample Description (USCS) (GW)

Physical Properties***Laboratory Testing***

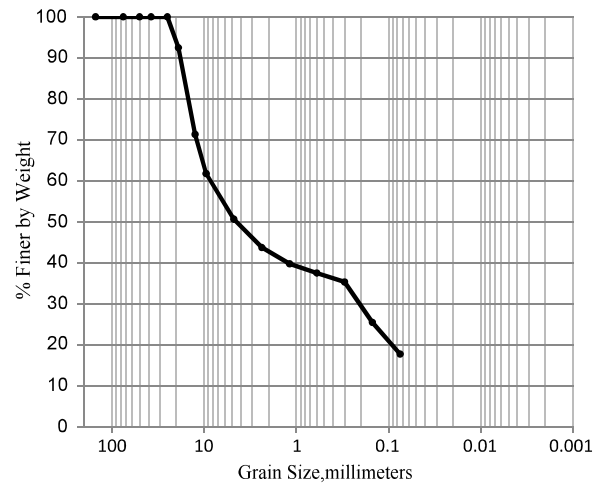
Liquid Limit, ASTM D4318
 Plastic Limit, ASTM D4318
 Plastic Limit, ASTM D4318
 Moisture Content- Soil, ASTM D2216, %

Results***Spec's.******Pass/Fail***

NV 0 - 25 Pass
 NP -
 NP 0 - 6 Pass
 1.9 -
 -

Sieve Analysis
ASTM C422

Sieve Size	Percent Passing	Specifications Min.	Specifications Max.	Pass/Fail
6 in	100			
3 in	100			
2 in	100			
1-1/2 in	100			
1 in	100	100		
3/4 in	92	80	100	Pass
1/2 in	59			
3/8 in	49			
No. 4	35	30	60	Pass
No. 100	26	20	45	Pass
No. 16	21			
No. 30	17			
No. 50	14			
No. 100	12			
No. 200	9.1	3.0	10.0	Pass

Grain Size Distribution Curve

Services: Performed Standard Proctor Test (ASTM D698), Sieve Analysis (ASTM C136) and Liquid Limit, Plastic Limit (ASTM

Terracon Rep: Erica Begay

Reported To:

Contractor: CRA Services

Report Distribution

(1) CRA Services,

(1) Terracon Consultants, Inc.,

(1) Terracon Consultants, Inc.,

Lunch/NC:

Reviewed By:

Zachary St Jean
 Office Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

Terracon

#4 A CR 3499

Flora Vista, NM 87415

505-334-2900

FIELD DENSITY TEST REPORT

Report Number: AG121036.0006

Service Date: 11/05/12

Report Date: 11/09/12

Task:

Terracon

#4 A CR 3499

Flora Vista, NM 87415

505-334-2900

Client

CRA Services
Attn: Don Osterhout
4141 Davis Creek Court
Kalamazoo, MI 49001

Project

Church Rock Road
McKinley County
Gallup, NM

Project Number: AG121036

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data		Project Requirements	
				Optimum Water Content (%)	Max. Lab Density (pcf)	Water Content (%)	Minimum Compaction (%)
1	AG121036.0004	Silty Sand with Gravel	ASTM D698	11.8	117.3	9.8 - 13.8	Min 95

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
Road Way, Subgrade (fill locations)									
1	30' south of Bridge, at roadway centerline	-1.0 FSG	1	12	123.7	11.1	9.9	112.6	96
2	180' south of Bridge, at Roadway centerline(north colvert)	-1.0 FSG	1	12	123.6	11.3	10.1	112.3	96
3	580' south of Bridge, At roadway centerline (south colvert)	-1.0 FSG	1	12	124.5	11.1	9.8	113.4	97

Datum: FSG = Finished Grade

Serial No: 38536

Std. Cnt. M:634

Std. Cnt. D: 2033

Comments: Test and/or retest results on this report meet project requirements as noted above.

Services: Perform in-place density and moisture content testing to determine percent compaction and material moisture content.

Terracon Rep.: Dempsey, Wilbert

Reported To: Steve Corning, CRA

Contractor: CRA Services

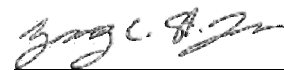
Report Distribution:

(1) CRA Services, scorning@cravworld.com

(1) Terracon Consultants, Inc.,
wdempsey@terracon.com

(1) Terracon Consultants, Inc.,
zestjean@terracon.com

Reviewed By:



Zachary St Jean
Office Manager

Test Methods: ASTM D6938

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

FIELD DENSITY TESTING REPORT

Report Number: AG121036.0006
Service Date: 11/05/12
Report Date: 11/09/12

Terracon

#4 A CR 3499
Flora Vista, NM 87415
505-334-2900

Client

CRA Services
Attn: Don Osterhout
4141 Davis Creek Court
Kalamazoo, MI 49001

Project

Church Rock Road
McKinley County
Gallup, NM

Project Number: AG121036

Services Requested By: Steve Corning with CRA
Earthwork Contractor: CRA
Observed Location(s): Roadway Subgrade (Fill locations)
Subgrade Review: Prior to the placement of fill the subgrade was reviewed and consisted of Silty Sand, with Gravel. The subgrade was observed to be firm and stable.
Fill Type Placed: Structural Fill
Proctor No. (s): AG121036.0004
Fill Description: Silty Sand, with Gravel
Source of Fill: Imported from Rehoboth, Pit (McConnell)
Fill Placement: The fill was observed to be placed in approximately 12-inch thick lifts. Compactive efforts were applied with a vibratory smooth-drum roller and fully loaded, Belly Dump Trucks. The fill placed appeared firm and stable during the application of compactive efforts.
Field Density Test Results: Field density tests were conducted on the fill placed today utilizing the nuclear method (ASTM D6938). 3 field density tests were performed. The test results met the minimum specified 95% compaction requirement as compared to ASTM D698. Refer to the attached Field Density Test Summary for individual test data.
Reported To: Steve Corning with CRA

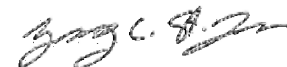
Services: Perform in-place density and moisture content testing to determine percent compaction and material moisture content.

Terracon Rep.: Dempsey, Wilbert
Reported To: Steve Corning, CRA
Contractor: CRA Services
Report Distribution:

(1) CRA Services,
scoming@cravworld.com
(1) Terracon Consultants, Inc.,
zcsjjean@terracon.com

(1) Terracon Consultants, Inc.,
wdempsey@terracon.com

Reviewed By:



Zachary St Jean
Office Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

FIELD DENSITY TEST REPORT**Report Number:** AG121036.0007**Service Date:** 11/06/12**Report Date:** 11/09/12**Task:**

#4 A CR 3499

Flora Vista, NM 87415

505-334-2900

Client

CRA Services
 Attn: Don Osterhout
 4141 Davis Creek Court
 Kalamazoo, MI 49001

Project

Church Rock Road
 McKinley County
 Gallup, NM

Project Number: AG121036

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data		Project Requirements	
				Optimum Water Content (%)	Max. Lab Density (pcf)	Water Content (%)	Minimum Compaction (%)
1	AG121036.0004	Silty Sand with Gravel	ASTM D698	11.8	117.3	9.8 - 13.8	Min 95

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
Roadway, Subgrade (from hwy 566 to bridge)									
4	50' north and 3' east of hwy 566 centerline and roadway centerline, intersection	FSG	1	10	127.0	11.9	10.3	115.1	98
5	230' north and 2' east of hwy 566 centerline and roadway centerline, intersection	FSG	1	10	129.0	11.5	9.8	117.5	100
6	420' north and 1' west of hwy 566 centerline and roadway centerline, intersection	FSG	1	10	127.4	11.7	10.1	115.7	99
7	640' north and 3' east of hwy 566 centerline and roadway centerline, intersection	FSG	1	10	128.7	12.0	10.3	116.7	99
8	840' north and 2' west of hwy 566 centerline and roadway centerline, intersection	FSG	1	10	128.6	11.5	9.8	117.1	100
9	1005' north and 1' east of hwy 566 centerline and roadway centerline, intersection	FSG	1	10	130.1	11.7	9.9	118.4	100+
10	1170' north and 1' west of hwy 566 centerline and roadway centerline, intersection	FSG	1	10	124.4	11.7	10.4	112.7	96
11	1420' north and 2' east of hwy 566 centerline and roadway centerline, intersection	FSG	1	10	126.3	12.1	10.6	114.2	97
12	1610' north and 1' west of hwy 566 centerline and roadway centerline, intersection	FSG	1	10	127.4	11.9	10.3	115.5	98
13	1740' north and 3' east of hwy 566 centerline and roadway centerline, intersection	FSG	1	10	126.1	11.4	9.9	114.7	98

Datum: FSG = Finished Subgrade**Serial No:** 38536**Std. Cnt. M:** 623**Std. Cnt. D:** 2024**Comments:** Test and/or retest results on this report meet project requirements as noted above.

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

FIELD DENSITY TEST REPORT

Report Number: AG121036.0007

Service Date: 11/06/12

Report Date: 11/09/12

Task:

Terracon

#4 A CR 3499

Flora Vista, NM 87415

505-334-2900

Client

CRA Services
Attn: Don Osterhout
4141 Davis Creek Court
Kalamazoo, MI 49001

Project

Church Rock Road
McKinley County
Gallup, NM

Project Number: AG121036

Services: Perform in-place density and moisture content testing to determine percent compaction and material moisture content.

Terracon Rep.: Dempsey, Wilbert

Reported To: Steve Corning, with CRA

Contractor: CRA Services

Report Distribution:

(1) CRA Services, scorning@cravworld.com

(1) Terracon Consultants, Inc.,
wdempsey@terracon.com

(1) Terracon Consultants, Inc.,
zcsjjean@terracon.com

Reviewed By:



Zachary St Jean
Office Manager

Test Methods: ASTM D6938

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

FIELD DENSITY TESTING REPORT

Report Number: AG121036.0007
Service Date: 11/06/12
Report Date: 11/09/12

Terracon

#4 A CR 3499
Flora Vista, NM 87415
505-334-2900

Client

CRA Services
Attn: Don Osterhout
4141 Davis Creek Court
Kalamazoo, MI 49001

Project

Church Rock Road
McKinley County
Gallup, NM

Project Number: AG121036

Services Requested By: Steve Corning with CRA
Earthwork Contractor: CRA
Observed Location(s): Roadway Subgrade from HWY 566 to Bridge
Subgrade Review: Prior to the placement of fill the subgrade was reviewed and consisted of Silty Sand with Gravel. The subgrade was observed to be firm and stable.
Fill Type Placed: Structural Fill
Proctor No. (s): AG121036.0004
Fill Description: Silty Sand with gravel
Source of Fill: Imported from Rehoboth, pit (McConnell)
Fill Placement: The fill was observed to be placed in an approximately 12-inch thick lift. Compactive efforts were applied with a vibratory smooth-drum roller and fully loaded, belly dump trucks. The fill placed appeared firm and stable during the application of compactive efforts.
Field Density Test Results: Field density tests were conducted on the fill placed today utilizing the nuclear method (ASTM D6938). 10 field density tests were performed. The test results met the minimum specified 95% compaction requirement as compared to ASTM D698. Refer to the attached Field Density Test Summary for individual test data.
Reported To: Steve Corning with CRA

Services: Perform in-place density and moisture content testing to determine percent compaction and material moisture content.

Terracon Rep.: Dempsey, Wilbert

Reported To: Steve Corning, with CRA

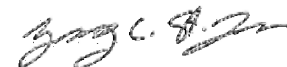
Contractor: CRA Services

Report Distribution:

(1) CRA Services,
scoming@cravworld.com
(1) Terracon Consultants, Inc.,
zcsjjean@terracon.com

(1) Terracon Consultants, Inc.,
wdempsey@terracon.com

Reviewed By:



Zachary St Jean
Office Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

FIELD DENSITY TEST REPORT**Report Number:** AG121036.0009**Service Date:** 11/12/12**Report Date:** 11/15/12**Task:****Terracon**

#4 A CR 3499

Flora Vista, NM 87415

505-334-2900

ClientCRA Services
Attn: Don Osterhout
4141 Davis Creek Court
Kalamazoo, MI 49001**Project**Church Rock Road
McKinley County
Gallup, NM

Project Number: AG121036

Material Information

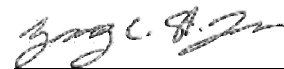
Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data		Project Requirements	
				Optimum Water Content (%)	Max. Lab Density (pcf)	Water Content (%)	Minimum Compaction (%)
1	AG121036.0004	Silty Sand with Gravel	ASTM D698	11.8	117.3	9.8 - 13.8	Min 95

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
Roadway, Subgrade (Colvert Fill) 1170' north of hwy 566									
14	2' west of roadway centerline and covert centerline	FSG	1	12	128.6	13.1	11.3	115.5	98
Roadway Subgrade fill, North of bridge to cattle guard									
15	135' north and 2' east of centerline and bridge	FSG	1	10	129.3	13.2	11.4	116.1	99
16	256' north and 2' west of centerline and bridge	FSG	1	10	124.9	12.2	10.8	112.7	96
17	415' north and 2' east of centerline and bridge	FSG	1	10	125.1	12.9	11.5	112.2	96
18	540' north and 2' west of centerline and bridge	FSG	1	10	125.4	13.6	12.2	111.8	95

Datum: FSG = Finsihed Subgrade**Serial No:** 38536**Std. Cnt. M:** 633**Std. Cnt. D:** 2043**Comments:** Test and/or retest results on this report meet project requirements as noted above.**Services:** Perform in-place density and moisture content testing to determine percent compaction and material moisture content.**Terracon Rep.:** Dempsey, Wilbert**Reported To:** Steve Corning with CRA**Contractor:** CRA Services**Report Distribution:**

(1) CRA Services, scorning@cravworld.com

(1) Terracon Consultants, Inc.,
wdempsey@terracon.com(1) Terracon Consultants, Inc.,
zestjean@terracon.com**Reviewed By:**Zachary St Jean
Office Manager**Test Methods:** ASTM D6938

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

FIELD DENSITY TESTING REPORT

Report Number: AG121036.0009
Service Date: 11/12/12
Report Date: 11/15/12

Terracon

#4 A CR 3499
Flora Vista, NM 87415
505-334-2900

Client

CRA Services
Attn: Don Osterhout
4141 Davis Creek Court
Kalamazoo, MI 49001

Project

Church Rock Road
McKinley County
Gallup, NM

Project Number: AG121036

Services Requested By: Steve Corning with CRA Services
Earthwork Contractor: CRA Services
Observed Location(s): Roadway Subgrade fill from culvert (north of hwy 566) and north of bridge to cattle guard
Subgrade Review: Prior to the placement of fill the subgrade was reviewed and consisted of Silty Sand with Gravel. The subgrade was observed to be firm and stable.
Fill Type Placed: Roadway subgrade
Proctor No. (s): AG121036.0004
Fill Description: Silty Sand with Gravel
Source of Fill: Imported from Rehoboth Pit
Fill Placement: The fill was observed to be placed in approximately 12-inch thick lifts. Compactive efforts were applied with a vibratory smooth-drum roller and fully loaded, belly dump trucks. The fill placed appeared firm and stable during the application of compactive efforts.
Field Density Test Results: Field density tests were conducted on the fill placed today utilizing the nuclear method (ASTM D6938). 5 field density tests were performed. The test results met the minimum specified 95% compaction requirement as compared to ASTM D698. Refer to the attached Field Density Test Summary for individual test data.
Reported To: Chad Girrback with CRA Services

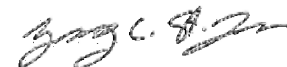
Services: Perform in-place density and moisture content testing to determine percent compaction and material moisture content.

Terracon Rep.: Dempsey, Wilbert
Reported To: Steve Corning with CRA
Contractor: CRA Services
Report Distribution:

(1) CRA Services,
scoming@cravworld.com
(1) Terracon Consultants, Inc.,
zcsjjean@terracon.com

(1) Terracon Consultants, Inc.,
wdempsey@terracon.com

Reviewed By:



Zachary St Jean
Office Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

APPENDIX E

Safety, Health, Environmental Monitoring

APPENDIX E: Safety, Health, Environmental Monitoring

E1. Health and Safety Training

Health and Safety training including site specific and radiation safety induction training was conducted and documented for all workers prior to working on the site as outlined in the RWPR Removal Action Plan. The training covered radiation characteristics and properties, background radiation, sources of radiation, biological effects, radiation monitoring, and site hazards. A daily safety briefing was held each morning prior to commencing work.

Monitoring for health and safety included the following.

- Air monitoring;
- Personnel Breathing Zone Samples;
- Personnel Radiation Exposure Monitoring.

E2. Air Monitoring

Staplex air samplers with an approximate flow rate of 40 cubic feet per minute (cfm) were used for air monitoring during cleanup operations at the three locations shown in Figure E3-1 and as described in Table E3-1. The glass fiber filters, 8 inch x 10 inch, were analyzed for radium-226 (Ra-226) and total uranium (U). Ra-226 was analyzed by EPA Analytical Method 903.1 (radon emanation) (EPA, 2007). Total U was analyzed using SW-846, 3rd Edition, Method 6020A (inductively couple plasma - mass spectroscopy, ICP-MS) (EPA, 2008). All air monitoring results indicated measured Ra-226 and natural uranium were less than 10% of effluent concentrations from 10 CFR 20 Appendix B Table 2 as shown in Table E3-2 and less than 1% of the applicable occupational DACs from 10 CFR 20, Appendix B, Table 1.

E3. Personnel Breathing Zone Samples (lapel)

Worker breathing zone (BZ) air sampling was performed with SKC AirChek pumps during a variety of work activities on at least two days per week. The filters were analyzed for Ra-226 and U. Ra-226 was analyzed by EPA Analytical Method 903.0 (radon emanation) (EPA, 2007). Total U was analyzed using Method 6020A (inductively couple plasma - mass spectroscopy, ICP-MS) (EPA, 2008).

Worker BZ air sample results are consistent with environmental air sampling results. All BZ results, as shown in Table E3-3, indicated measured Ra-226 and natural uranium were both less than 1% of the applicable occupational DACs from 10 CFR 20, Appendix B, Table 1.

Figure E3-1 Air Monitoring Stations**Table E3-1 Location of Air Sampling**

Sample Location	Northing Easting	General Location	Date
Location #1a	N 1698100 E 2524242	Top of Church Rock (CR1) Waste Rock	From 10-6-2012 to 10-8-2012 1:16 PM
Location #1b	N 1697992 E 2524250	Top of Church Rock (CR1) Waste Rock	From 10-8-2012 1:16 PM to end of project
Location #2	N 1697379 E 2523412	West Side of RWPR (Near community entrance -same location as UNC sample)	From beginning to end of project
Location #3	N 1696980 E 2524409	East Side of RWPR (just east of RWPR)	From beginning to end of project

Table E3-2 Air Sampling Results

			Ra-226		U-Nat	
			Public Effluent Concentration Limit 10CFR20 Appendix B Table 2 Column 1(µCi/ml)			
			9.0E-13		9.0E-14	
			Sample ID	Date	Sample Location	Results (µCi/ml)
RWPR-AS-065	10/6/2012	#1	2.1E-16	0.0002	9.8E-16	0.0109
RWPR-AS-066	10/8/2012	#1	4.8E-17	0.0001	4.8E-16	0.0054
RWPR-AS-067	10/9/2012	#1	1.4E-16	0.0002	1.0E-15	0.0114
RWPR-AS-068	10/10/2012	#1	9.7E-16	0.0011	1.8E-15	0.0197
RWPR-AS-069	10/11/2012	#1	3.4E-16	0.0004	1.5E-15	0.0171
RWPR-AS-070	10/12/2012	#1	2.3E-16	0.0003	4.5E-16	0.0050
RWPR-AS-071	10/13/2012	#1	9.7E-16	0.0011	1.7E-15	0.0188
RWPR-AS-072	10/13/2012	#2	4.0E-16	0.0004	5.4E-16	0.0060
RWPR-AS-073	10/13/2012	#3	7.2E-16	0.0008	6.7E-16	0.0075
RWPR-AS-074	10/14/2012	#1	1.5E-15	0.0016	2.1E-15	0.0236
RWPR-AS-075	10/14/2012	#2	1.1E-15	0.0012	5.4E-16	0.0060
RWPR-AS-076	10/14/2012	#3	1.4E-15	0.0015	4.7E-16	0.0053
RWPR-AS-077	10/15/2012	#1	6.8E-16	0.0008	9.5E-16	0.0105
RWPR-AS-078	10/15/2012	#2	5.7E-16	0.0006	5.9E-16	0.0066
RWPR-AS-079	10/15/2012	#3	1.1E-15	0.0013	1.2E-15	0.0135
RWPR-AS-080	10/16/2012	#1	8.1E-16	0.0009	1.3E-15	0.0142
RWPR-AS-081	10/16/2012	#3	7.4E-16	0.0008	1.2E-15	0.0129
RWPR-AS-082	10/17/2012	#1	8.5E-16	0.0009	5.7E-16	0.0063
RWPR-AS-083	10/17/2012	#2	5.4E-16	0.0006	6.5E-16	0.0072
RWPR-AS-084	10/17/2012	#3	8.0E-16	0.0009	8.5E-16	0.0095
RWPR-AS-085	10/18/2012	#1	7.9E-16	0.0009	1.9E-15	0.0213
RWPR-AS-086	10/18/2012	#3	1.1E-15	0.0013	1.5E-15	0.0172
RWPR-AS-087 ¹	10/24/2012	#1	1.7E-15	0.0019	4.3E-15	0.0481
RWPR-AS-088	10/24/2012	#2	6.4E-16	0.0007	8.8E-16	0.0098
RWPR-AS-089 ¹	10/24/2012	#3	2.0E-15	0.0022	4.6E-15	0.0507
RWPR-AS-090	10/25/2012	#1	8.0E-16	0.0009	1.0E-15	0.0113
RWPR-AS-091	10/26/2012	#1	9.2E-16	0.0010	1.1E-15	0.0124
RWPR-AS-092	10/26/2012	#2	7.8E-16	0.0009	7.1E-16	0.0079
RWPR-AS-093	10/26/2012	#3	1.0E-15	0.0011	6.0E-16	0.0067
RWPR-AS-094	10/27/2012	#1	9.8E-16	0.0011	1.3E-15	0.0147
RWPR-AS-095	10/27/2012	#2	1.3E-15	0.0014	6.2E-16	0.0069
RWPR-AS-096	10/27/2012	#3	1.3E-15	0.0014	2.2E-15	0.0241
RWPR-AS-097	10/29/2012	#1	6.4E-16	0.0007	2.3E-15	0.0253
RWPR-AS-098	10/29/2012	#2	8.9E-16	0.0010	5.2E-16	0.0058
RWPR-AS-099	10/29/2012	#3	6.3E-16	0.0007	1.0E-15	0.0113
RWPR-AS-100	10/30/2012	#1	7.2E-16	0.0008	1.3E-15	0.0145
RWPR-AS-101	10/30/2012	#2	5.2E-17	0.0001	8.3E-16	0.0092
RWPR-AS-102	10/30/2012	#3	5.8E-16	0.0006	8.9E-16	0.0098
RWPR-AS-103	10/31/2012	#1	1.6E-16	0.0002	1.3E-15	0.0147
RWPR-AS-104	10/31/2012	#2	9.8E-16	0.0011	7.0E-16	0.0077

Table E3-2 Air Sampling Results (Cont'd)

			Ra-226		U-Nat	
			Public Effluent Concentration Limit 10CFR20 Appendix B Table 2 Column 1(μCi/ml)			
			9.0E-13		9.0E-14	
Sample ID	Date	Sample Location	Results (μCi/ml)	Ratio (Result/Limit)	Results (μCi/ml)	Ratio (Result/Limit))
RWPR-AS-105	10/31/2012	#3	1.6E-16	0.0002	6.4E-16	0.0071
RWPR-AS-106	11/1/2012	#1	8.2E-16	0.0009	1.6E-15	0.0176
RWPR-AS-107	11/1/2012	#2	5.9E-16	0.0007	8.5E-16	0.0094
RWPR-AS-108	11/1/2012	#3	7.1E-16	0.0008	6.7E-16	0.0075
			Max ratio	0.0022	----	0.051

¹ These samples were found blown over by the wind, face down in the dirt and are not representative.

Table E3-3 Breathing Zone Air Sampling Results

ID	Date	Volume (ml)	Ra-226 (μCi/ml)	U
CR-BZ-014	09 Oct 2012	8.8 E+4	ND	ND
CR-BZ-015	11 Oct 2012	8.2E+4	ND	ND
CR-BZ-016	12 Oct 2012	8.3E+4	ND	ND
CR-BZ-017	15 Oct 2012	8.2E+4	ND	ND
CR-BZ-018	17 Oct 2012	7.3E+4	ND	ND
CR-BZ-019	24 Oct 2012	8.5E+4	8.7E-18	ND
CR-BZ-020	25 Oct 2012	7.9E+4	4.3E-17	ND

ND = non detect

Results not available at the time of this report.

E4. Personnel Radiation Exposure Monitoring

Optically Stimulated Luminescent (OSL) dosimeters were worn by workers to document external radiation exposure above background. All results were less than the minimal dose equivalent of 1 mrem as shown in Table E4-1. Comparatively, typical annual background in New Mexico is 300 – 400 mrem and the limit is 5,000 mrem for trained radiation workers.

Table E4-1 Radiation Exposure Results

Wear Period 10/1/2011 through 10/31/2012			
Serial #	DDE/LDE/SDE	Serial #	DDE/LDE/SDE
7251895A	M	7251908A	M
7251896A	M	7251909A	M
7251897A	M	7251910A	M
7251901A	M	7251911A	M
7251902A	M	7251912A	M
7251903A	M	7251913A	M
7251904A	M	7251914A	M
7251906A	M	7251915A	M
7251907A	M	7251916A	M

M = minimal dose equivalent – 1 mrem for OSL (DDE, LDE, and SDE)
DDE = Deep Dose Equivalent; LDE = Lens of Eye; SDE = Shallow Dose Equivalent
Control dose of 18 mrem subtracted

E5. Personnel and Equipment Contamination Monitoring

Based on historical contamination monitoring results at the site, routine monitoring was not conducted. Some judgmental surveys were conducted on equipment when it was removed from the site permanently. These surveys consisted of alpha scans with a Ludlum 4 equipped with a 43-5 detector and smears taken on the equipment analyzed with a Ludlum 2241 equipped with a 43-10 detector. No contamination above background was identified.

Personnel were trained on hygiene techniques (i.e. washing hands prior to eating and wearing leather gloves) to minimize inhalation / ingestion of contamination.

APPENDIX F

Vegetation Data

APPENDIX F: Vegetation Data

The seed mix in the approved Work Plan was modified and approved by the U.S. EPA to account for the addition of a species recommended by the community. Additional changes to seed mix were necessary owing to limited availability of some seeds due to late planting season. The RWPR area was seeded in November 2012 and the seed mixes used are presented in Table F1-1 and Table F1-2 respectively.

Table F 1-1 Recommended Plant Species Seed Mix – September 2012

Scientific Names	Common Names	Pure Live Seed (lbs/acre)	Percent of total
Shrubs/trees			
Artemisia tridentata	Big sagebrush	1.50	8.8
Atriplex canescens	Four-wing saltbush	3.00	17.6
Chrysothamnus nauseosus and spp.	Rubber and other species of rabbitbrush	2.00	11.8
Gutierrezia sarothrae	Sneezeweed	0.50	2.9
Juniperus monosperma	Juniper (seedling)	100/acre	n/a
Krascheninnikovia lanata	Winterfat	1.00	5.9
Pinus edulis	Pinyon pine (seedling)	50/acre	n/a
Subtotal Shrubs/trees		8.00	47.1
Grasses			
Achnatherum hymenoides	Indian ricegrass	1.00	5.9
Aristida purpurea	Purple three-awn	0.25	1.5
Bouteloua curtipendula	Side-oats grama	0.25	1.5
Bouteloua gracilis	Blue grama	2.00	11.8
Elmus longifolus	Squirreltail	0.25	1.5
Muhlenbergii porteri	Bush muhli	0.25	1.5
Pascopyrum smithii	Western wheatgrass	2.50	14.7
Pleuraphis jamesii	Galleta	0.75	4.4
Poa secunda	Bluegrass	0.25	1.5
Sporobolus airoides	Alkali sacaton	0.50	2.9
Subtotal Grasses		7.00	41.2
Forbs			
Cleome serrulata	Bee plant	0.25	1.5
Heterotheca villosa	Hairy golden aster	0.25	1.5
Linum lewisii	Blue flax	0.25	1.5
Senecio multicapitatus	Groundsel	0.50	2.9
Sphaeralcea coccinea	Scarlet globemallow	0.75	4.4
Subtotal Forbs		2.00	11.8
Totals		17.00	

Table F1-2 Recommended Plant Species Seed Mix – October 2012

Scientific Names	Common Names	Pure Live Seed (lbs/acre)	Percent of total
Shrubs/trees			
Artemisia tridentata *	Big sagebrush	2.00	11.8
Atriplex canescens *	Four-wing saltbush	1.50	8.8
Chrysothamnus nauseosus and spp. *	Rubber and other species of rabbitbrush	0.25	1.5
Gutierrezia sarothrae *	Sneezeweed	2.00	11.8
Juniperus monosperma	Juniper (seedling)	100/acre	n/a
Artemisia filifolia *	Sand sagebrush	2.00	11.8
Krascheninnikovia lanata	Winterfat	1.00	5.9
Pinus edulis	Pinyon pine (seedling)	50/acre	n/a
Subtotal Shrubs/trees		8.75	51.6
Grasses			
Achnatherum hymenoides	Indian ricegrass	1.00	5.9
Aristida purpurea *	Purple three-awn	0.50	3.0
Bouteloua curtipendula	Side-oats grama	0.25	1.5
Bouteloua gracilis	Blue grama	1.00	5.9
Elmus longifolus	Squirreltail	0.25	1.5
Muhlenbergii porteri *	Bush muhli	0.00	0.0
Sporobolus cryptandrus *	Sand dropseed	0.25	1.5
Pascopyrum smithii *	Western wheatgrass	0.05	0.3
Pleuraphis jamesii *	Galleta	0.25	1.5
Poa secunda	Bluegrass	0.25	1.5
Sporobolus airoides	Alkali sacaton	0.50	2.9
Subtotal Grasses		4.30	25.5
Forbs			
Cleome serrulata *	Bee plant	0.50	3.0
Heterotheca villosa *	Hairy golden aster	0.05	0.3
Macheraanthera tanacetifolia *	Prairie aster	0.05	0.3
Penstemon *	Beard-tongue	0.05	0.3
Linum lewisii *	Blue flax	0.05	0.3
Senecio multicapitatus *	Groundsel	0.00	0.0
Ratibda columnifera *	Yellow prairie coneflower	0.25	1.5
Sphaeralcea coccinea *	Scarlet globemallow	0.00	0.0
Sphaeralcea ambigua *	Desert globemallow	0.05	0.3
Subtotal Forbs		1.00	6.0
Totals		14.05	

Notes:

Seed mix was submitted to U.S. EPA as part of the RWPR Removal Action (Sept, 2012). Penstemon was added after consultation with RWPR community.

Updates were made to the seed mix owing to limited availability of certain species at the time of the required revegetation and these changes are shown with an asterisk.

Recon Inc.
3104 East Camelback Road #507
Phoenix, AZ 85016

Tel: (602) 437-4393
FAX: (602) 957-6885

TRANSMITTAL LETTER

PROJECT:
Church Rock - Fall 2012 Seeding
McKinley County, NM

PROJECT NO:

TO:
CRA Services
Chad Girrback
4141 Davis Creek Court
Kalamazoo, Michigan 49001-0838

DATE:
November 27, 2012

WE TRANSMIT:
☒ herewith ☐ under separate cover
☐ in accordance with your request

FOR YOUR:
☐ approval ☐ distribution ☐ information
☐ review & comment ☒ record
☐ use ☐ as noted below

THE FOLLOWING:
☐ drawings ☐ product data ☐ samples
☐ specifications ☐ reproducible
☐ change order ☒ as noted below

Copies	Date	Description
		Seeding Materials Certificate of Compliance
1	12/28/11	Seed tags (9 pages) Granite Seed supplier
1	11/19/12 11/20/12	Seeding Log (6 pages)

Reference project specifications Table 4-1

REMARKS: Submitted for your record.

COPIES TO:

By: Sam Stevenson

From: Granite Seed - Lehi
1697 W 2100 N
Lehi, UT 84043

1 of 9

Mix Name: Church Rock

1-15585

Mix # 111534

Church Rock

% Pure	Common Name	Variety	G + D or H	Origin
12.66	FOURWING SALTBUSH	VNS	69-TZ	NM
7.95	WESTERN WHEATGRASS	Ambs	91 + 2 = 93	CO
6.72	BLUE GRAMA	Blind's Eye	88-TZ	WY
6.23	RUBBER RABBITRUSH	VNS	95-TZ	UT
4.88	SABIN BIG SAGEBRUSH	VNS	91-TZ	UT
7.70	INTERMOUNTAIN	VNS	80-TZ	NM
3.08	INDIAN RICEGRASS	Nespar	96-TZ	WA
2.49	DESERT GLOBEMALLOW	VNS	89-TZ	
2.32	JAMES' GALLETA	VNS	97 + 9.5 = 99.5	TX
1.76	YELLOW PRAIRIE CONEFLOWER	Stillwater	94 + 0 = 94	WA
1.64	ALKALI SACATON	VNS	90 + 0 = 90	NM
1.57	SAND SAGEBRUSH	VNS	94-TZ	UT
1.56	PALMER PENSTEMON	VNS	95-TZ	NV
0.87	PRAIRIE ASTER	VNS	76 + 10 = 86	CA
0.81	BLUEGRASS, SANDBERG	VNS	91-TZ	WA
0.80	BIDEOTS GRAMA	Vaughn	92-TZ	NM
0.79	ROCKY MOUNTAIN SERPLANT	VNS	94-TZ	CO
0.78	BOTTLEBRUSH SQUIRRELTAIL	VNS	90-TZ	WA
0.77	PURPLE THREEAWN	VNS	98-TZ	AZ
0.77	LEWIS BLUE FLAX	Appar	96 + 0 = 96	WA
0.75	SAND DROPSEED	VNS	89-TZ	CO

0.04 Other Crop Data Tested: 28-DEC-11

36.81 Inert Matter % Hard Seed: 0.00

0.03 Weed Seed
Noxious Weeds: *Avena fatua*, *crabgrass*, large
barnyardgrass

Net Weight: 18.50 Lbs. PLS 33.80 Lbs. Bulk

Coverage: 1 Acre

NOTICE TO BUYER LIMITATIONS OF WARRANTIES AND REMEDIES

Crop yield and quality are dependent upon many factors beyond the control of the labeled seller and NO WARRANTY is made for crop yield and quality. The labeled seller warrants that all seed sold has been labeled as required under applicable state and federal seed law and that the seed conforms to the label description, within recognized tolerances. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE LABEL.

No claim shall be asserted against the labeled seller unless Buyer reports to the labeled seller within a reasonable period after discovery (not more than thirty days), any condition that might lead to a complaint. BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OR LOSS RESULTING FROM BREACH OF WARRANTY, BREACH OF CONTRACT OR NEGLIGENCE (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALL BE LIMITED TO REFUND OF THE PURCHASE PRICE.

By acceptance of the seed, Buyer agrees the terms and conditions stated above are a benefit to the bargain and constitute the entire agreement between Buyer and the labeled seller. Buyer shall return the original unopened seed package to the labeled seller within twenty days of receipt for a refund of the purchase price if not accepted under these terms.

NOTICE: REQUIRED ARBITRATION / CONCILIATION / MEDIATION

The seed laws of several states including Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Minnesota, Mississippi, North Dakota, South Carolina (Section 48-21-200), South Dakota, Texas and Washington require arbitration, conciliation or mediation of disputes involving alleged defective seed before certain legal actions may be maintained against a seller. North Carolina offers an alternative to court action that allows claims to be investigated and heard before the Special Seed Board. A complaint (except for AR, CO, FL, IL, IN, MN, MS, NC, SC, TX, WA, signed only, CA, OK, ID, ND, SD) must be filed with the Department of Agriculture or Seed Commissioner (IN) or State Plant Board (OK), or Commissioner of Agriculture (NC) within such time to permit an inspection of seed, crops or plants (or an Arbitration Committee - AR, ID, MS, SC). In NC, failure to follow this procedure will limit the amount of damages recoverable. Certified copy of complaint must be sent by registered mail to the labeled seller as provided in individual state law. Information about these requirements may be obtained from the state Department of Agriculture.

Ship To:
Rosen, Inc.

From: Granite Seed - Lehi
1697 W 2100 N
Lehi, UT 84043

2 of 9

Mix Name: Church Rock
Mix # 111534

1-15585
Church Rock

% Pure	Common Name	Variety	G + D or H	Origin
12.86	FOURMING SALTBRUSH	VNS	89-TZ	NM
7.86	WESTERN WHEATGRASS	Ames	91 + 2 = 93	CO
6.72	BLUE GRAMA	Bird's Eye	88-TZ	WY
5.71	PLATEAU SAGEBRUSH	VNS	-	UT
4.88	SABIN BR SAGEBRUSH	VNS	91-TZ	UT
3.70	WINTERPAT	VNS	80-TZ	NM
3.06	INDIAN RICEGRASS	Nezper	96-TZ	WA
2.43	DESERT GLOBEMALLOW	VNS	89-TZ	
2.32	JAMES' GALLETA	Vive	90 + 5.5 = 95.5	TX
1.78	YELLOW PRAIRIE CONEFLOWER	Soliwater	84 + 0 = 84	WA
1.64	ALKALI SACATON	VNS	90 + 0 = 90	NM
1.57	SAND SAGEBRUSH	VNS	84-TZ	UT
1.56	PALMER PENSTEMON	VNS	95-TZ	NV
0.87	PRAIRIE ASTER	VNS	75 + 10 = 85	CA
0.81	BLUGRASS, SANDBERG	VNS	91-TZ	WA
0.80	SIDEOTS GRAMA	Vaughn	92-TZ	NM
0.79	ROCKY MOUNTAIN BEEPLANT	VNS	94-TZ	CO
0.78	BOTTLEBRUSH SQUIRRELTAIL	VNS	96-TZ	WA
0.77	PURPLE THREBAWN	VNS	96-TZ	AZ
0.77	LEWIS BLUE FLAX	Appar	96 + 0 = 96	WY
0.75	SAND DROPSEED	VNS	98-TZ	CO

0.04 Other Crop Date Tested: 28-DEC-11

36.81 Inert Matter % Hard Seed: 0.00

0.09 Weed Seed
Noxious Weed: wrens fatus, crabgrass, large,
barnyardgrass

Net Weight: 18.80 Lbs Bulk 38.80 Lbs Bulk

Coverage: 1 Acre

NOTICE TO BUYER LIMITATIONS OF WARRANTIES AND REMEDIES

Crop yield and quality are dependent upon many factors beyond the control of the labeled seller and NO WARRANTY is made for crop yield and quality. The labeled seller warrants that all seed sold has been tested as required under applicable state and federal seed law and that the seed conforms to the label description, within recognized tolerances. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE LABEL.

No claim shall be asserted against the labeled seller unless Buyer reports to the labeled seller within a reasonable period after discovery (not to exceed thirty days), any condition that might lead to a complaint. BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OR LOSS RESULTING FROM BREACH OF WARRANTY, BREACH OF CONTRACT OR NEGLIGENCE (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE.

By acceptance of the seed, Buyer agrees the terms and conditions stated above are a benefit to the bargain and constitute the entire agreement between Buyer and the labeled seller. Buyer shall return the original unopened seed package to the labeled seller within twenty days of receipt for a refund of the purchase price if not accepted under these terms.

NOTICE: REQUIRED ARBITRATION / CONCILIATION / MEDIATION

The seed laws of several states including Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Minnesota, Mississippi, North Dakota, South Carolina (Section 48-21-260), South Dakota, Texas and Washington require arbitration, conciliation or mediation of disputes involving alleged defective seeds before certain legal actions may be maintained against a seller. North Carolina offers an alternative to court action that allows claims to be investigated and heard before the Special Seed Board. A complaint (governed by AR, CO, FL, IL, IN, MN, MS, NG, SC, TX, WA, signed only, CA, GA, ID, ND, SD) must be filed with the Department of Agriculture or Seed Commissioner (IN) or State Plant Board (AR) or Commissioner of Agriculture (NC) within such time to permit an inspection of seed, crops or plants by an Arbitration Committee - AR, ID, MS, SD, or NC. Failure to follow this procedure will limit the amount of damages recoverable. Certified copy of complaint must be sent by registered mail to the labeled seller as provided in individual state law. Information about these requirements may be obtained from the state Department of Agriculture.

Ship To:
Recon, Inc.

From: Granite Seed - Lehi
1897 W 2100 N
Lehi, UT 84043

3 of 9

Mix Name: Church Rock

1-15585

Mix # 111534

Church Rock

% Pure	Common Name	Variety	G + D or H	Origin
12.88	FOURWING BALTBUSH	VNS	89-T2	NM
7.85	WESTERN WHEATGRASS	Antio	81 + 2 = 83	CO
8.72	BLUE GRAMA	80th's Eye	88-T2	WY
5.23	BURDER RABBITGRASS	VNS	85-T2	UT
4.88	BASIN BIG SAGEBRUSH	VNS	81-T2	UT
3.70	WINTERFAT	VNS	80-T2	NM
3.08	INDIAN RICEGRASS	Neugar	86-T2	WA
2.49	DESERT GLOBEMALLOW	VNS	88-T2	
2.32	JAMES' GALLETA	Vns	80 + 5.5 = 85.5	TX
1.78	YELLOW PRAIRIE CONEFLOWER	Silvester	84 + 0 = 84	WA
1.84	ALKALI SACKTON	VNS	90 + 0 = 90	NM
1.57	SAND SAGEBRUSH	VNS	84-T2	UT
1.50	PALMER PENSTEMON	VNS	88-T2	WY
0.87	PRAIRIE ASTER	VNS	75 + 10 = 85	CA
0.81	BLUEGRASS, SANDBERG	VNS	81-T2	WA
0.80	BIDSOAT'S GRAMA	Vaughn	82-T2	NM
0.78	ROCKY MOUNTAIN BEEPLANT	VNS	84-T2	CO
0.78	BOTTLEBRUSH SQUIRELTAIL	VNS	85-T2	WA
0.77	PURPLE THRESEANN	VNS	86-T2	AZ
0.77	LEWIS BLUE FLAX	Appar	86 + 0 = 86	WA
0.76	SAND DROPSSEED	VNS	88-T2	CO

0.84 Other Crop Date Tested: 28-DEC-11

36.61 Inert Matter % Hard Seed: 0.09

0.83 Weed Seed
Noxious Weed: aveena spive, ombgrass, large, banyardgrass

Net Weight: 19.58 Lbs. PLS 33.80 Lbs. Bulk

Coverage: 1 Acre

NOTICE TO BUYER LIMITATIONS OF WARRANTIES AND REMEDIES

Crop yield and quality are dependent upon many factors beyond the control of the labeled seller and NO WARRANTY is made for crop yield and quality. The labeled seller warrants that all seed sold has been labeled as required under applicable state and federal seed law and that the seed conforms to the label description, within recognized tolerances. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE LABEL.

No claim shall be asserted against the labeled seller unless the buyer reports to the labeled seller within a reasonable period after delivery (not to exceed thirty days), any condition that might lead to a complaint. BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OR LOSS RESULTING FROM BREACH OF WARRANTY, BREACH OF CONTRACT OR NEGLIGENCE (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE.

By acceptance of the seed, the buyer agrees the terms and conditions stated above are a benefit to the bargain and constitute the entire agreement between the buyer and the labeled seller. Buyer shall return the original unopened seed package to the labeled seller within twenty days of receipt for a refund of the purchase price if not accepted under these terms.

NOTICE: REQUIRED ARBITRATION / CONCILIATION / MEDIATION

The seed laws of several states including Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Minnesota, Mississippi, North Dakota, South Carolina (Section 40-21-200), South Dakota, Texas and Washington require arbitration, conciliation or mediation of disputes involving alleged defective seed before certain legal actions may be maintained against a seller. North Carolina offers an alternative to court action that allows claims to be investigated and heard before the Special Seed Board. A complaint (sworn for AR, CO, FL, IL, IN, MN, MS, NC, SC, TX, WA; signed only, CA, GA, ID, ND, SD) must be filed with the Department of Agriculture or Seed Commissioner (IN) or State Plant Board (AR) or Commissioner of Agriculture (NC) within such time to permit an inspection of seed, crops or plants by an Arbitration Committee - AR, ID, MS, SC, IN NC, failure to follow this procedure will limit the amount of damages recoverable. Certified copy of complaint must be sent by registered mail to the labeled seller as provided in individual state law for information about these requirements may be obtained from the state Department of Agriculture.

Ship To:
Recon, Inc.
605-437-4383
3719 East Anne Street
Phoenix, AZ 85040

From: Granite Seed - Lehi
1697 W 2100 N
Lehi, UT 84043

4 of 9

Mix Name: Church Rock

1-15585

Mix # 111534

Church Rock

% Pure	Common Name	Variety	G + D or H	Origin
12.86	POURWING SALT BUSH	VNS	88-TZ	NM
7.95	WESTERN WHEATGRASS	Ambs	81 + 2 = 83	CO
6.72	BLUE GRAMA	Bird's Eye	88-TZ	WY
6.23	RUBBER RABBITRUSH	VNS	88-TZ	UT
4.88	BASIN BIG SAGEBRUSH	VNS	81-TZ	UT
3.70	WINTERPAT	VNS	80-TZ	NM
3.08	INDIAN RICEGRASS	Nexder	86-TZ	WA
2.49	OPPERT GLOBEMALLOW	VNS	88-TZ	
2.32	JAMES' GALLETA	VNS	80 + 8.5 = 88.5	TX
1.76	YELLOW PRAIRIE CONEFLOWER	Stillwater	84 + 0 = 84	WA
1.53	ALBUQUERQUE	VT	80 + 0 = 80	NM
1.97	SAND SAGEBRUSH	VNS	84-TZ	UT
1.86	PALMER PENSTEMON	VNS	85-TZ	NV
0.87	PRAIRIE ASTER	VNS	75 + 10 = 85	CA
0.81	BLUEGRASS, SANDBERG	VNS	81-TZ	WA
0.80	SIDEOTS GRAMA	Vaughn	82-TZ	NM
0.78	ROCKY MOUNTAIN BEEPLANT	VNS	84-TZ	CO
0.78	BOTTLEBRUSH SQUIRRELTAIL	VNS	85-TZ	WA
0.77	PURPLE THREEAWN	VNS	86-TZ	AZ
0.77	LEWIS BLUE FLAX	Apper	88 + 0 = 88	WA
0.75	SAND CROPSEED	VNS	88-TZ	CO

0.04 Other Crop Date Tested: 28-DEC-11

38.51 Inert Matter % Inert Seed: 0.00

0.03 Weed Seed
Noxious Weed: ryegrass, large, bermudagrass

Net Weight: 18.50 Lbs. PLS 38.80 Lbs. Bulk

Coverage: 1 Acre

NOTICE TO BUYER LIMITATIONS OF WARRANTIES AND REMEDIES

Crop yield and quality are dependent upon many factors beyond the control of the labeled seller and NO WARRANTY is made for crop yield and quality. The labeled seller warrants that all seed sold has been labeled as required under applicable state and federal seed law and that the seed conforms to the label description, within recognized tolerances. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE LABEL.

No claim shall be asserted against the labeled seller unless Buyer reports to the labeled seller within a reasonable period after discovery (not to exceed thirty days), any condition that might lead to a complaint. BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OR LOSS RESULTING FROM BREACH OF WARRANTY, BREACH OF CONTRACT OR NEGLIGENCE (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE.

By acceptance of the seed, Buyer agrees the terms and conditions stated above are a part of the bargain and constitute the entire agreement between Buyer and the labeled seller. Buyer shall return the original unopened seed package to the labeled seller within twenty days of receipt for a refund of the purchase price if not accepted under these terms.

NOTICE: REQUIRED ARBITRATION / CONCILIATION / MEDIATION

The seed laws of several states including Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Minnesota, Mississippi, North Dakota, South Carolina (Section 45-21-200), South Dakota, Texas and Washington require arbitration, conciliation or mediation of disputes involving alleged defective seed before certain legal actions may be maintained against a seller. North Carolina offers an alternative to court action that allows claims to be investigated and heard before the Special Seed Board. A complaint (sworn for AR, CO, FL, IL, IN, MN, MS, NC, SC, TX, WA; signed only, CA, GA, ID, ND, SD) must be filed with the Department of Agriculture or Seed Commissioner (IN) or State Plant Board (AR) or Commissioner of Agriculture (NC) within such time to permit an inspection of seed, crops or plants by an Arbitration Committee - AR, ID, MS, SD). In NC, failure to follow this procedure will limit the amount of damages recoverable. Certified copy of complaint must be sent by registered mail to the labeled seller as provided in individual state law. Information about these requirements may be obtained from the state Department of Agriculture.

Ship To:
Recon, Inc.

From: Granite Seed - Lehi
1697 W 2100 N
Lehi, UT 84043

5 of 9

Mix Name: Church Rock

1-15585

Mix # 111534

Church Rock

% Pure Common Name	Variety	G + D or H	Origin
12.86 FOURMING WHEATGRASS	VNS	89-TZ	NM
7.95 WESTERN WHEATGRASS	Antba	91 + 2 + 93	CO
6.72 BLUE OF-JA	Blind's Eye	98-TZ	WY
6.23 RUBBER RABBITGRASS	VNS	99-TZ	UT
4.88 BASIN BIG SAGEBRUSH	VNS	91-TZ	T
3.70 WINTERHAT	VNS	90-TZ	NM
3.08 INDIAN RICEGRASS	Nezper	96-TZ	WA
2.49 DESERT GLOBENALLOW	VNS	89-TZ	
2.31 JAMES' GALLETA	Viva	90 + 95 = 95.5	TX
1.76 YELLOW PRAIRIE CONEFLOW	Stilwater	84 + 0 = 84	WA
1.64 ALKALI SACATON	VNS	90 + 0 = 90	NM
1.57 SAND SAGEBRUSH	VNS	84-TZ	UT
1.56 PALMER PENSTEMON	VNS	85-TZ	NV
0.87 PRAIRIE ASTER	VNS	75 + 10 = 85	CA
0.81 BLUEGRASS, SANDBERG	VNS	91-TZ	WA
0.80 SIDEGRASS GRAMA	Vaughn	82-TZ	NM
0.79 ROCKY MOUNTAIN BEEPLANT	VNS	94-TZ	CO
0.78 BOTTLEBRUSH SQUIRRELTAIL	VNS	93-TZ	WA
0.77 PURPLE THREEAWN	VNS	96-TZ	AZ
0.77 LEWIS BLUE FLAX	Appar	96 + 0 = 96	WA
0.75 SAND DROPSEED	VNS	98-TZ	CO

0.04 Other Crop Date Tested: 28-DEC-2000

35.91 Inert Matter % Hard Seed: 0.00

0.05 Weed Seed
Noxious Weed: avensafetus, crabgrass, large,
barnyardgrass

Net Weight: 18.80 Lbs PLS 33.80 Lbs Bulk

Coverage: 1 Acre

NOTICE TO BUYER LIMITATIONS OF WARRANTIES AND REMEDIES

Crop yield and quality are dependent upon many factors beyond the control of the labeled seller and NO WARRANTY is made for crop yield and quality. The labeled seller warrants that all seed sold has been labeled as required under applicable state and federal seed law and that the seed conforms to the label description, within recognized tolerances. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE LABEL.

No claim shall be asserted against the labeled seller unless Buyer reports to the labeled seller within a reasonable period after discovery (not to exceed thirty days), any condition that might lead to a complaint. BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OR LOSS RESULTING FROM BREACH OF WARRANTY, BREACH OF CONTRACT OR NEGLIGENCE (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE.

By acceptance of the seed, Buyer agrees the terms and conditions stated above are a benefit to the bargain and constitute the entire agreement between Buyer and the labeled seller. Buyer shall return the original unopened seed package to the labeled seller within twenty days of receipt for a refund of the purchase price if not accepted under these terms.

NOTICE: REQUIRED ARBITRATION / CONCILIATION / MEDIATION

The seed laws of several states including Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Minnesota, Mississippi, North Dakota, South Carolina (Section 49-21-260), South Dakota, Texas and Washington require arbitration, conciliation or mediation of disputes involving alleged defective seed before certain legal actions may be maintained against a seller. North Carolina offers an alternative to court action that allows claims to be investigated and heard before the Special Seed Board. A complaint (sworn for AR, CO, FL, IL, IN, MN, MS, NC, SC, TX, VA; signed only, CA, GA, ID, ND, SD) must be filed with the Department of Agriculture or Seed Commissioner (IN) or State Plant Board (AR) or Commissioner of Agriculture (WV) within such time to permit an inspection of seed, crops or plants (by an Arbitration Committee - AR, ID, MS, SC). In NC, failure to follow this procedure will limit the amount of damages recoverable. Certified copy of complaint must be sent by registered mail to the labeled seller as provided in individual state law. Information about these requirements may be obtained from the state Department of Agriculture.

Ship To:
Recon, Inc.

From: Granite Seed - Lehi
1697 W 2100 N
Lehi, UT 84043

6 of 8

Mix Name: Church Rock

1-15585

Mix # 111534

Church Rock

% Pure Common Name	Variety	G + D or H	Origin
12.86 FOURMING SALT BUSH	VNS	88-TZ	NM
7.95 WESTERN WHEATGRASS	Ambs	91 + 2 = 93	CO
6.72 BLUE GRAMA	Bird's Eye	89-TZ	NV
5.23 RUBBER RAUBIT BUSH	VNS	89-TZ	UT
4.89 BASH BIG SAGEBRUSH	VNS	91-TZ	UT
3.70 WINTERPAT	VNS	89-TZ	NM
3.08 INDIAN ROSEGRASS	Nazpar	96-TZ	WA
2.49 DESERT GLOBEMALLOW	VNS	88-TZ	
2.32 JAMES' GALLETA	Viva	90 + 5.5 = 95.5	TX
1.76 YELLOW PRAIRIE CONEFLOWER	Stillwater	94 + 0 = 94	WA
1.64 TALKAL SACATON	VNS	90 + 0 = 90	NM
1.57 SAND SAGEBRUSH	VNS	94-TZ	UT
1.56 PALMER PENSTEMON	G	95-TZ	NV
0.87 PRAIRIE ASTER	VNS	75 + 10 = 85	CA
0.81 BLUEGRASS, SANDBERG	VNS	90-TZ	WA
0.80 SIDEDOTS GRAMA	Vaughn	92-TZ	NM
0.79 ROCKY MOUNTAIN BEEPLANT	VNS	84-TZ	CO
0.78 BOTTLEBRUSH SQUIRRELTAIL	VNS	88-TZ	WA
0.77 PURPLE THREEAWN	VNS	86-TZ	AZ
0.77 LEWIS BLUE FLAX	Appar	86 + 0 = 86	WA
0.75 SAND DROPSEED	VNS	88-TZ	CO

0.04 Other Crop Date Tested: 28-DEC-11

35.81 Inert Matter % Hard Seed: 0.00

0.03 Weed Seed Noxious Weed:evens fetus, crabgrass, large, barnyardgrass

Net Weight 18.80 Lbs PLS 33.80 Lbs Bulk

Coverage: 1 Acre

NOTICE TO BUYER LIMITATIONS OF WARRANTIES AND REMEDIES

Crop yield and quality are dependent upon many factors beyond the control of the labeled seller and NO WARRANTY is made for crop yield and quality. The labeled seller warrants that all seed sold has been labeled as required under applicable state and federal seed law and that the seed conforms to the label description within recognized tolerances. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE LABEL.

No claim shall be asserted against the labeled seller unless Buyer reports to the labeled seller within a reasonable period after discovery (not to exceed thirty days), any condition that might lead to a complaint. BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OR LOSS RESULTING FROM BREACH OF WARRANTY, BREACH OF CONTRACT OR NEGLIGENCE (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE.

By acceptance of the seed, Buyer agrees the terms and conditions stated above are a benefit to the bargain and constitute the entire agreement between Buyer and the labeled seller. Buyer shall return the original unopened seed package to the labeled seller within twenty days of receipt for a refund of the purchase price if not accepted under these terms.

NOTICE: REQUIRED ARBITRATION / CONCILIATION / MEDIATION

The seed laws of several states including Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Minnesota, Mississippi, North Dakota, South Carolina (Section 49-21-260), South Dakota, Texas and Washington require arbitration, conciliation or mediation of disputes involving alleged defective seed before certain legal actions may be maintained against a seller. North Carolina offers an alternative to court action that allows claims to be investigated and heard before the Special Seed Board. A complaint (sworn for AR, CO, FL, IL, IN, MN, MS, NC, SC, TX, VA, signed only, CA, GA, ID, ND, SD) must be filed with the Department of Agriculture or Seed Commissioner (IN) or State Plant Board (AR) or Commissioner of Agriculture (NC) within such time to permit an inspection of seed, crops or plants (by an Arbitration Committee - AR, ID, MS, SC). IN, NC, failure to follow this procedure will limit the amount of damages recoverable. Certified copy of complaint must be sent by registered mail to the labeled seller as provided in individual state law. Information about these requirements may be obtained from the state Department of Agriculture.

Ship To:
Recon, Inc.

From: Granite Seed - Lehi
1697 W 2100 N
Lehi, UT 84043

7 of 9

Mix Name: Church Rock

1-15595

Mix # 111534

Church Rock

% Pure Common Name	Variety	Q + D or H	Origin
12.86 FOURWING SALT BUSH	VNS	89-TZ	NM
7.95 WESTERN WHEATGRASS	Am/ba	91 + 2 = 93	CO
6.72 BLUE GRAMA	Bin/s/eyn	89-TZ	WY
6.23 RUBBER RABBIT BRUSH	VNS	95-TZ	UT
4.88 BASIN BIG SAGEBRUSH	VNS	91-TZ	UT
3.70 WINTERPAT	VNS	77-TZ	NM
3.00 INDIAN RICEGRASS	Newpar	96-TZ	WA
2.49 DESERT OLDBEMALLOW	VNS	99-TZ	
2.92 JAMES GALLETA	VNS	90 + 95 = 95.5	TX
1.76 YELLOW PRAIRIE CONEFLOWER	St/Hinter	84 + 0 = 84	WA
1.64 ALKALI SACATON	VNS	90 + 0 = 90	NM
1.57 SAND SAGEBRUSH	VNS	94-TZ	UT
1.56 PALMER PENSTEMON	VNS	95-TZ	NV
0.87 PRAIRIE ASTER	VNS	75 + 10 = 85	CA
0.81 BLUEGRASS, SANDBERG	VNS	91-TZ	WA
0.80 SIDEDOTS GRAMA	Vaughn	92-TZ	NM
0.79 ROCKY MOUNTAIN BEEPLANT	VNS	94-TZ	CO
0.78 BOTTLEBRUSH SQUIRRELTAIL	VNS	95-TZ	WA
0.77 PURPLE THREEAVIN	VNS	98-TZ	AZ
0.77 LEWIS BLUE FLAX	Appar	96 + 0 = 96	WA
0.75 SAND DROPSEED	VNS	98-TZ	CO

0.04 Other Crop Date Tested: 28-DEC-11

36.81 Inert Matter % Inert Seed 0.00

0.03 Weed Seed

Noxious Weed:
gryns fatius, crabgrass, large,
barnyardgrass

Net Weight 18.00 Lbs. PLS 93.80 Lbs. Bulk

Coverage: 1 Acre

NOTICE TO BUYER LIMITATIONS OF WARRANTIES AND REMEDIES

Crop yield and quality are dependent upon many factors beyond the control of the labeled seller and NO WARRANTY is made for crop yield and quality. The labeled seller warrants that all seed sold has been labeled as required under applicable state and federal seed law and that the seed conforms to the label description, within recognized tolerances. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE LABEL.

No claim shall be asserted against the labeled seller unless Buyer reports to the labeled seller within a reasonable period after discovery (not to exceed thirty days), any condition that might lead to a complaint. BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OR LOSS RESULTING FROM BREACH OF WARRANTY, BREACH OF CONTRACT OR NEGLIGENCE (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE.

By acceptance of the seed, Buyer agrees the terms and conditions stated above are a benefit to the buyer and constitute the entire agreement between Buyer and the labeled seller. Buyer shall return the original unopened seed package to the labeled seller within twenty days of receipt for a refund of the purchase price if not accepted under these terms.

NOTICE: REQUIRED ARBITRATION / CONCILIATION / MEDIATION

The seed laws of several states including Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Minnesota, Mississippi, North Dakota, South Carolina (Section 4B-21-220), South Dakota, Texas and Washington require arbitration, conciliation or mediation of disputes involving alleged defective seed before certain legal actions may be maintained against a seller. North Carolina offers an alternative to court action that allows claims to be investigated and heard before the Special Jury Board. A complaint (sworn for AR, CO, FL, IL, IN, MN, MS, NC, SC, TX, WA; signed only, CA, GA, ID, ND, SD) must be filed with the Department of Agriculture or Seed Commissioner (IN) or State Plant Board (AR) or Commissioner of Agriculture (NC) within each time to permit an inspection of seed, crops or plants (by an Arbitration Committee - AR, ID, MS, SD). In NC, failure to follow this procedure will limit the amount of damages recoverable. Certified copy of complaint must be sent by registered mail to the labeled seller as provided in individual state law. Information about these requirements may be obtained from the state Department of Agriculture.

Ship To:
Recon, Inc.

From: Granite Seed - Lehi
1697 W 2100 N
Lehi, UT 84043

8 of 9

Mix Name: Church Rock

1-15585

Mix # 111534

Church Rock

% Pure Common Name	Variety	G + D or H	Origin
12.66 FOURWING SALT BUSH	VNS	89-TZ	NM
7.66 WESTERN WHEATGRASS	Ambs	91 + 2 = 93	CO
6.72 BLUE GRAMA	Bird's Eye	89-TZ	NV
6.29 RUBBER RABBIT BRUSH	VNS	95-TZ	UT
4.88 BASIN BIG SAGEBRUSH	VNS	91-TZ	UT
3.70 WINTERPAT	VNS	90-TZ	NM
3.06 INDIAN RICEGRASS	Nezper	98-TZ	WA
2.49 DESERT GLOBEMALLOW	VNS	98-TZ	
2.32 JAMES' GALLETA	Viva	90 + 5.5 = 95.5	TX
1.76 YELLOW PRAIRIE CONEFLOWER	Stillwater	94 + 0 = 94	WA
1.64 ALKALI SACATON	VNS	90 + 7 = 97	
1.67 SAND SAGEBRUSH	VNS	94-TZ	UT
.59 PALMER PENSTEMON	VNS	96-TZ	NV
0.87 PRAIRIE ASTER	VNS	75 + 10 = 85	CA
0.81 BLUEGRASS, SANDBERG	VNS	91-TZ	WA
0.80 S DECATS GRAMA	Vaughn	92-TZ	NM
0.79 ROCKY MOUNTAIN BEEPLANT	VNS	94-TZ	CO
0.78 BOTTLEBRUSH SQUIRRELTAIL	VNS	95-TZ	WA
0.77 PURPLE THREEAWN	VNS	96-TZ	AZ
0.77 LEWIS BLUE FLAX	Appar	96 + 0 = 96	WA
0.76 SAND DROPSEED	VNS	98-TZ	CO

0.04 Other Crop Date Tested: 28-DEC-11

0.01 Plant Matter % Hard Seed: 0.00

0.03 Weed Seed Noxious Weed:
avena fatua, crabgrass, large,
barnyardgrass

Net Weight: 19.80 Lbs PLS 33.80 Lbs Bulk

Coverage: 1 Acre

NOTICE TO BUYER LIMITATIONS OF WARRANTIES AND REMEDIES

Crop yield and quality are dependent upon many factors key and the control of the labeled seller and NO WARRANTY is made for crop yield and quality. The labeled seller warrants that all seed sold has been labeled as required under applicable state and federal seed law and that the seed conforms to the label description, within recognized tolerances. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE LABEL.

Buyer shall be asserted against the labeled seller unless Buyer reports to the labeled seller within a reasonable period after discovery ("discovery" means 90 days), any condition that might lead to a complaint. BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OR LOSS RESULTING FROM BREACH OF WARRANTY, BREACH OF CONTRACT OR NEGLIGENCE (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE.

By acceptance of the seed, Buyer agrees the terms and conditions stated above are a benefit to the bargain and constitute the entire agreement between Buyer and the labeled seller. Buyer shall return the original unopened seed package to the labeled seller within twenty days of receipt for a refund of the purchase price if not accepted under these terms.

NOTICE: REQUIRED ARBITRATION / CONCILIATION / MEDIATION

The seed laws of several states including Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Minnesota, Mississippi, North Dakota, South Carolina (Section 49-21-260), South Dakota, Texas and Washington require arbitration, conciliation or mediation of disputes involving alleged defective seed before certain legal actions may be maintained against a seller. North Carolina offers an alternative to court action that allows claims to be investigated and heard before the Special Seed Board. A complaint (sworn for AR, CO, FL, IL, IN, MN, MS, NC, SC, TX, VA, signed only, CA, GA, ID, ND, SD) must be filed with the Department of Agriculture or Seed Commissioner (N) or State Plant Board (AR) or Commissioner of Agriculture (ND) within such time to permit an inspection of seed, cross or plants (by an Arbitration Committee - AR, ID, MS, NC). In NC, failure to follow this procedure will limit the amount of damages recoverable. Certified copy of complaint must be sent by registered mail to the labeled seller as provided in individual state law. Information about these requirements may be obtained from the state Department of Agriculture.

Ship To:
Recon, Inc.

From: Granite Seed - Lehi
1697 W 2100 N
Lehi, UT 84043

9 of 9

Mix Name: Church Rock

1-15585

Mix # 111534

Church Rock

% Pure, Common Name	Variety	G + D or H	Origin
12.86 FOURMING SALT BUSH	VNS	69-TZ	NM
7.95 WESTERN WHEATGRASS	Amba	91 + 2 = 93	CO
8.72 BLUE GRAMA	Blind's Eye	98-TZ	WY
5.23 RUBBER RABBITBRUSH	VNS	98-TZ	UT
4.89 BASIN BIG SAGEBRUSH	VNS	91-TZ	UT
1.71 WINTERPAT	VNS	80-TZ	NM
3.08 INDIAN RICEGRASS	Nespar	98-TZ	WA
2.49 DESERT GLOBEMALLOW	VNS	89-TZ	
2.32 JAMES' GALLET	VNS	90 + 0.5 = 90.5	TX
1.78 YELLOW PRAIRIE CONEFLOWER	Stillwater	94 + 0 = 94	WA
1.64 ALKALI SACATON	VNS	90 + 0 = 90	NM
1.57 SAND SAGEBRUSH	VNS	94-TZ	UT
1.56 PALMER PENSTEMON	VNS	95-TZ	NV
0.87 PRAIRIE ASTER	VNS	75 + 10 = 85	CA
0.81 BLUEGRASS, SANDBERG	VNS	91-TZ	WA
0.80 SIDECOTE GRAMA	Vaughn	92-TZ	NM
0.79 ROCKY MOUNTAIN BEEPLANT	VNS	94-TZ	CO
0.78 BOTTLEBRUSH SQUIRRELTAIL	VNS	95-TZ	WA
0.77 PURPLE THREEAWN	VNS	98-TZ	AZ
0.76 E. BLUE FLAX	Appar	98 + 0 = 98	WA
0.75 SAND DROPSEED	VNS	98-TZ	CO

0.04 Other Crop Date Tested: 28-DEC-11

36.81 Inert Matter % Hard Seed: 0.00

0.03 Weed Seed

Noxious Weed: arena fatua, crabgrass, large,
barnyardgrass

Net Weight: 9.25 Lbs. PLS 16.80 Lbs. Bulk

Coverage: .8 Acres

NOTICE TO BUYER LIMITATIONS OF WARRANTIES AND REMEDIES

Crop yield and quality are dependent upon many factors beyond the control of the labeled seller and NO WARRANTY is made for crop yield and quality. The labeled seller warrants that all seed sold has been tested as required under applicable state and federal seed law and that the seed conforms to the label description, within recognized tolerances. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE LABEL.

No claim shall be asserted against the labeled seller unless Buyer reports to the labeled seller within a reasonable period after discovery (not to exceed thirty days), any condition that might lead to a complaint. BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OR LOSS RESULTING FROM BREACH OF WARRANTY, BREACH OF CONTRACT OR NEGLIGENCE (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE.

By acceptance of the seed, Buyer agrees the terms and conditions stated above are a benefit to the bargain and constitute the entire agreement between Buyer and the labeled seller. Buyer shall return the original unopened seed package to the labeled seller within twenty days of receipt for a refund of the purchase price if not accepted under these terms.

NOTICE: REQUIRED ARBITRATION / CONCILIATION / MEDIATION

The seed laws of several states including Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Minnesota, Mississippi, North Dakota, South Carolina (Section 48-21-282), South Dakota, Texas and Washington require arbitration, conciliation or mediation of disputes involving alleged defective seed before certain legal actions may be maintained against a seller. North Carolina offers an alternative to court action that allows claims to be first arbitrated and heard before the Special Seed Board. A complaint (sworn for AR, CO, FL, IL, IN, MN, MS, NC, SC, TX, WA; signed only, CA, GA, ID, ND, SD) must be filed with the Department of Agriculture or Seed Commissioner (IN) or State Plant Board (AR) or Commissioner of Agriculture (NC) within such time to permit an inspection of seed, crops or plants (by an Arbitration Committee - AR, ID, MS, SD). In NC, failure to follow this procedure will limit the amount of damages recoverable. Certified copy of complaint must be sent by registered mail to the labeled seller as provided in individual state law. Information about these requirements may be obtained from the state Department of Agriculture.

Ship To:
Recon, Inc.

**Recon Inc.
Seeding
LOG**

Project Name: Church Rock - Fall 2012 Seeding
McKinley County, NM

Project NO:

Date: 11-19-12

Load # 1
Hydroseed/Tackifier
(Circle One)

Station ___+___ to ___+___

Begin Batching 7:48
Begin Seeding 8:28

Cap/Slope of Mine

Materials Used This Load:

Wood Mulch	<u>30</u>	Bag(s)
Seed	<u>3</u>	Bag(s)
Fertilizer	<u>—</u>	Bag(s)
Tack	<u>3</u>	Bag(s)
Total	<u>33</u>	Acre(s)

Load # 2
Hydroseed/Tackifier
(Circle One)

Station ___+___ to ___+___

Begin Batching 9:03
Begin Seeding 9:30

*Shoulder of
Church Rock Mine Rd.*

Materials Used This Load:

Wood Mulch	<u>30</u>	Bag(s)
Seed	<u>3</u>	Bag(s)
Fertilizer	<u>—</u>	Bag(s)
Tack	<u>3</u>	Bag(s)
Total	<u>33</u>	Acre(s)

Daily Totals:

Acres Seeded: 6 AC

Acknowledgment and Receipt of Seed Tags:

Agency _____

Signature _____

November 16, 2012

**Recon Inc.
Seeding
LOG**

Project Name: Church Rock - Fall 2012 Seeding
McKinley County, NM

Project No:

Date: ¹⁹
11-16-12

Load # 3
Hydroseed/ Tackifier
(Circle One)

Station ___+___ to ___+___

Shoulder of Church Rock Rd

Begin Batching 10:04

Begin Seeding 11:40

3
Flats of disturbed dirt
by caps & slopes.

Materials Used This Load:

Wood Mulch	<u>2.5</u> Bag(s)
Seed	<u>2.5</u> Bag(s)
Fertilizer	___ Bag(s)
Tack	<u>2.5</u> Bag(s)
Total	<u>2.5</u> Acre(s)

Load # 4
Hydroseed/ Tackifier
(Circle One)

Station ___+___ to ___+___

Shoulder of Church Rock
mine Rd.

Begin Batching 12:03

Begin Seeding 14:30

Materials Used This Load:

Wood Mulch	<u>30</u> Bag(s)
Seed	___ Bag(s)
Fertilizer	___ Bag(s)
Tack	<u>2</u> Bag(s)
Total	<u>✓</u> Acre(s)

Daily Totals:

Acres Seeded: 2.5 acres

Acknowledgment and Receipt of Seed Tags:

Agency _____

Signature _____

November 16, 2012

**Recon Inc.
Seeding
LOG**

Project Name: Church Rock - Fall 2012 Seeding
McKinley County, NM

Project No:

Date: 11/19/2012

Load # 5
Hydroseed/ Tackifier
(Circle One)

Station ___+___ to ___+___

Begin Batching 14:40
Begin Seeding 15:00

Mine Cap

Materials Used This Load:

Wood Mulch	<u>30</u>	Bag(s)
Seed	—	Bag(s)
Fertilizer	—	Bag(s)
Tack	<u>2</u>	Bag(s)
Total	<u>1</u>	Acre(s)

wind 2.4 MPH 67.1°F

Load # 6
Hydroseed/ Tackifier
(Circle One)

Station ___+___ to ___+___

Begin Batching 15:35
Begin Seeding 15:58 / 16:25

E side of

Materials Used This Load:

Wood Mulch	<u>30</u>	Bag(s)
Seed	—	Bag(s)
Fertilizer	—	Bag(s)
Tack	<u>2</u>	Bag(s)
Total	<u>1</u>	Acre(s)

Daily Totals:

Acres Seeded: 10

Acknowledgment and Receipt of Seed Tags:

Agency _____

Signature _____

November 16, 2012

Recon Inc.
Seeding
LOG

Project Name: Church Rock - Fall 2012 Seeding
McKinley County, NM

Project No:

Date: 11/20/2012

Load # 1
Hydroseed/ Tackifier
(Circle One)

Station + to +

Begin Batching

7:20 East/West side of Red Water Pond

Begin Seeding

7:55 Rd.

Materials Used This Load:

Wood Mulch	<u>30</u>	Bag(s)
Seed	<u> </u>	Bag(s)
Fertilizer	<u> </u>	Bag(s)
Tack	<u>2</u>	Bag(s)
Total	<u>1</u>	Acre(s)

Load # 2
Hydroseed/ Tackifier
(Circle One)

Station + to +

Begin Batching

8:25

~~Water~~ Water out - waited 1 hr.

Begin Seeding

9:55

Materials Used This Load:

Wood Mulch	<u>30</u>	Bag(s)
Seed	<u> </u>	Bag(s)
Fertilizer	<u> </u>	Bag(s)
Tack	<u>2</u>	Bag(s)
Total	<u>1</u>	Acre(s)

Daily Totals:

Acres Seeded: 0

Acknowledgment and Receipt of Seed Tags:

Agency

Signature

November 16, 2012

**Recon Inc.
Seeding
LOG**

Project Name: Church Rock - Fall 2012 Seeding
McKinley County, NM

Project No:

Date: _____

Load # 3
Hydroseed/ Tackifier
(Circle One)

Station ____+__ to ____+__

Begin Batching 10:05
Begin Seeding 10:40 / 1100

Materials Used This Load:

Wood Mulch	<u>30</u>	Bag(s)
Seed	—	Bag(s)
Fertilizer	—	Bag(s)
Tack	<u>2</u>	Bag(s)
Total	<u>1</u>	Acre(s)

Load # 4
Hydroseed/ Tackifier
(Circle One)

Station ____+__ to ____+__

Begin Batching 11:05
Begin Seeding 11:20

Materials Used This Load:

Wood Mulch	<u>15.25</u>	Bag(s)
Seed	—	Bag(s)
Fertilizer	—	Bag(s)
Tack	<u>1.25</u>	Bag(s)
Total	<u>.5</u>	Acre(s)

Daily Totals:

Acres Seeded: 1.5

Acknowledgment and Receipt of Seed Tags:

Agency _____

Signature _____

November 16, 2012

**Recon Inc.
Seeding
LOG**

Project Name: Church Rock - Fall 2012 Seeding
McKinley County, NM

Project No:

Date: 11-20-2012

Load # 5
Hydroseed/ Tackifier
(Circle One)

Station ___+___ to ___+___

Begin Batching 12:15

Begin Seeding 12:40

Materials Used This Load:

Wood Mulch	<u>30</u>	Bag(s)
Seed	—	Bag(s)
Fertilizer	—	Bag(s)
Tack	<u>2</u>	Bag(s)
Total	<u>1</u>	Acre(s)

Load # 6
Hydroseed/ Tackifier
(Circle One)

Station ___+___ to ___+___

Begin Batching 13:00

Begin Seeding 13:20

Materials Used This Load:

Wood Mulch	<u>30</u>	Bag(s)
Seed	—	Bag(s)
Fertilizer	—	Bag(s)
Tack	<u>2</u>	Bag(s)
Total	<u>1.0</u>	Acre(s)

Daily Totals:

Acres Seeded: 0

Acknowledgment and Receipt of Seed Tags:

Agency _____

Signature _____

November 16, 2012

Recon Inc.
Seeding
Mix Design

Project Name: Church Rock - Fall 2012 Seeding
 McKinley County, NM

Project No:

Materials -

Total area = 8.5 Acres

Seed	As specified	
Wood Mulch	2000 Lb/ Ac =	340.0 Bags
Tackifier	150 Lb/ Ac =	25.5 Bags

Seed	=	1.0 Acre
Wood Mulch	500 Lb/ Ac =	10.0 Bags
Tackifier	50 Lb/ Ac =	1.0 Bags

Mulch	1500 Lb/ Ac =	30.0 Bags
Tackifier	100 Lb/ Ac =	2.0 Bags

.....

= 2 - 3 Acre Loads
 1 - 2.5 Acre Load

Seed	(1) Load =	3.0 Acre
Wood Mulch	500 Lb/ Ac =	30.0 Bags
Tackifier	50 Lb/ Ac =	3.0 Bags

Hydromulch	=	8 - 1 Acre Loads
		1 -.5 Acre Load

Wood Mulch	1500 Lb/ Ac =	30.0 Bags
Tackifier	100 Lb/ Ac =	2.0 Bags

Water As Required

November 16, 2012

CERTIFICATE OF COMPLIANCE

for

MATERIALS FURNISHED FOR STATE AND
FEDERAL AID HIGHWAY PROJECTS

Project Name: Church Rock - Fall 2012 Seeding
McKinley County, NM

Project No:

Contractor: Recon Inc.
3104 East Camelback Road, Suite 507
Phoenix, AZ 85016

Supplier: Granite Seed
1697 West 2100 N
Lehi, UT 84043

<u>Section</u>	<u>Type and Grade of Material</u>	<u>Qty</u>
	Seed Mix (Attached)	8.5 Ac

We hereby certify that the above material furnished to Recon Inc.
conforms with all specified requirements of the project Special
Provisions and Plans.

Damon Winter, Sales Representative of Granite Seed Company
(printed name) (title) (company)

deposes and says that the above is a true and correct statement.

[Signature]
(signature)

Dated this 15 day of November, 2012.



Church Rock - Fall 2012 Seeding
 McKinley County, NM
 Recon Inc.
 November 13, 2012

Seed Mix

Botanical Name	Common Name	pls #/Ac
<i>Artemisia tridentata</i>	Big Sagebrush	2.00
<i>Atriplex canescens</i>	Four-Wing Saltbush	1.50
<i>Chrysothamnus nauseosus</i> and spp.	Rubber and other species of rabbitbrush	0.25
<i>Gutierrezia sarothrae</i> *	Sneezeweed	
<i>Artemisia Filifolia</i>	Sand Sagebrush	2.00
<i>Kreshennikovia lanta</i>	Winterfat	1.00
<i>Achnatherum hymenoides</i>	Indian Ricegrass	1.00
<i>Aristida purpurea</i>	Purple Three-awn	0.50
<i>Bouteloua curtipendula</i>	Side-oats grama	0.25
<i>Bouteloua gracilis</i>	blue grama	1.00
<i>Elymus longifolus</i>	squirreltail	0.25
<i>Muhlenbergii porteri</i> *	bush muhli	
<i>Sporobolus cryptandrus</i>	Sand Dropseed	0.05
<i>Pascopyrum smithii</i>	Wester Wheatgrass	0.05
<i>Pleuraphis jamesii</i>	Galleta	0.25
<i>Poa secunda</i>	Bluegrass	0.25
<i>Sporobolus airoides</i>	Alkali Sacaton	0.50
<i>Cleome serrulata</i>	Bee Plant	0.50
<i>Heterotheca villosa</i>	Hairy Golden Aster	0.05
<i>Macherauthera Tanacetifolia</i>	Prairie Aster	0.05
<i>Linum lewisii</i>	Blue Flax	0.05
<i>Penstemon (palmeri, eatonii, strictus, or barbatus)</i>	Beard-tongue	0.05
<i>Senecio multicapitatus</i> *	Groudsel	
<i>Ratibda columnifera</i>	Yellow Prairie Coneflower	0.25
<i>Sphaeralcea coccinea</i> *	Scarlet Globemallow	
<i>Sphaeralcea Ambigua</i>	Desert Globemallow	0.05
		18.50
		8.5 Ac

*Not Available

Substitution (bolded italics)



Wendy Dent 11-15-12

APPENDIX G

Raw Data

This appendix contains the raw radiological results and chain of custody for the following media:

- TLD/OSLs,
- breathing zone samples,
- air samples,
- soils samples for survey units and
- soil samples for borrow materials

TLD Raw Data

SENNES CONSULTANTS
ATTN: AMY GARVA
121 GRANTON DR, UNIT 12
RICHMOND HILL, ON L4B 3N4
Canada

Received Date / Reported Date	2012-11-08 / 2013-01-07
Page	2 of 2
Analytical Work Order / QC Release	1231211198 / NHE
Copy / Version	0 / 2

LANDAUER®

Landauer, Inc., 2 Science Road
Glenwood, Illinois 60425-1586
www.landauer.com
Telephone: (708) 755-7000
Facsimile: (708) 755-7016
Customer Service: (800) 323-8830
Technical: (800) 438-3241

REDACTED

Radiation Dosimetry Report

Account: 703534

Corrected

Participant Number	Name		Dosimeter	Use	Rad. Type	Rad. Quality	Dose Equivalent (mSv) for Periods Shown Below												Inception Date	Serial Number
							DDE-Deep Dose Equivalent LDE-Lens Dose Equivalent SDE-Shallow Dose Equivalent													
	Period Shown Below						Quarter to Date			Year to Date			Lifetime to Date							
	DDE	LDE					SDE	DDE	LDE	SDE	DDE	LDE	SDE	DDE	LDE	SDE				
For Monitoring Period:						2012-10-01 to 2012-10-31			QUARTER 4			2012			LIFETIME					
			Pa	CHEST			M	M	M									2012/10	7251906A	
				NOTE			CALCULATED											2012/10	7251907A	
			Pa	CHEST			M	M	M									2012/10	7251907A	
				NOTE			CALCULATED											2012/10	7251908A	
			Pa	CHEST			M	M	M									2012/10	7251908A	
				NOTE			CALCULATED											2012/10	7251909A	
			Pa	CHEST			M	M	M									2012/10	7251909A	
				NOTE			CALCULATED											2012/10	7251910A	
			Pa	CHEST			M	M	M									2012/10	7251910A	
				NOTE			CALCULATED											2012/10	7251911A	
			Pa	CHEST			M	M	M									2012/10	7251911A	
				NOTE			CALCULATED											2012/10	7251912A	
			Pa	CHEST			M	M	M									2012/10	7251912A	
				NOTE			CALCULATED											2012/10	7251913A	
			Pa	CHEST			M	M	M									2012/10	7251913A	
				NOTE			CALCULATED											2012/10	7251914A	
			Pa	CHEST			M	M	M									2012/10	7251914A	
				NOTE			CALCULATED											2012/10	7251915A	
			Pa	CHEST			M	M	M									2012/10	7251915A	
				NOTE			CALCULATED											2012/10	7251916A	
			Pa	CHEST			M	M	M									2012/10	7251916A	
				NOTE			CALCULATED											2012/10	7251916A	

Italicized participant line indicates corrected participant

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

SENNES CONSULTANTS
ATTN: AMY GARVA
121 GRANTON DR, UNIT 12
RICHMOND HILL, ON L4B 3N4
Canada

Received Date / Reported Date	2012-11-08 / 2013-01-07
Page	1 of 2
Analytical Work Order / QC Release	1231211198 / NHE
Copy / Version	0 / 2

LANDAUER®

Landauer, Inc., 2 Science Road
Glenwood, Illinois 60425-1586
www.landauer.com
Telephone: (708) 755-7000
Facsimile: (708) 755-7018
Customer Service: (800) 323-8830
Technical: (800) 438-3241

Radiation Dosimetry Report

Account: 703534

Corrected

Participant Number	Name		Dosimeter	Use	Rad. Type	Rad. Quality	Dose Equivalent (mSv) for Periods Shown Below												Inception Date	Serial Number
							DDE-Deep Dose Equivalent LDE-Lens Dose Equivalent SDE-Shallow Dose Equivalent													
	Period Shown Below						Quarter to Date			Year to Date			Lifetime to Date							
ID Number	Birth Date	DDE	LDE	SDE	DDE	LDE	SDE	DDE	LDE	SDE	DDE	LDE	SDE							
For Monitoring Period:						2012-10-01 to 2012-10-31			QUARTER 4			2012			LIFETIME					
00000	CONTROL		Pa	CNTRL														7251893A		
00063	350180-203		Pa	CHEST													2012/09	7251894A		
				NOTE		Unused														
00067	350180-203		Pa	CHEST													2012/09	7251898A		
				NOTE		Unused														
00068	350180-203		Pa	CHEST													2012/09	7251899A		
				NOTE		Unused														
00069	350180-203		Pa	CHEST													2012/09	7251900A		
				NOTE		Unused														
00074	350180-203		Pa	CHEST													2012/09	7251905A		
				NOTE		Unused														
			Pa	CHEST		M	M	M									2012/10	7251895A		
				NOTE		CALCULATED														
			Pa	CHEST		M	M	M									2012/10	7251896A		
				NOTE		CALCULATED														
			Pa	CHEST		M	M	M									2012/10	7251897A		
				NOTE		CALCULATED														
			Pa	CHEST		M	M	M									2012/10	7251901A		
				NOTE		CALCULATED														
			Pa	CHEST		M	M	M									2012/10	7251902A		
				NOTE		CALCULATED														
			Pa	CHEST		M	M	M									2012/10	7251903A		
				NOTE		CALCULATED														
			Pa	CHEST		M	M	M									2012/10	7251904A		
				NOTE		CALCULATED														

Indicated participant line indicates corrected participant

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Radiation Dosimetry Report

Annual Radiation Exposure Limits (mrem):

Whole body, blood-forming organs, gonads	5,000
Lens of Eye	15,000
Extremities and Skin	50,000
Fetal (Gestation period)	500
General Public	100

Based on the US NRC Regulations, Title 10, Part 20, Code of Federal Regulations and adopted by many states. Certain state and other regulatory agencies may adhere to different limits.

Control Dosimeter: A control dosimeter is included with each shipment of dosimeters for monitoring radiation exposure received during transit. At the customer's facility, store the control in a radiation free area during the wear period.

Minimal Dose Equivalent Reported: Dose equivalents below the minimum measurable quantity for the current monitoring period are recorded as "SL." The minimal reporting levels vary by the dosimeter type and radiation quality. "SL" is an elective option for the individual dose equivalent reported where exposures less than 10 mrem report as "SL" (excludes fetal dosimeters), and/or exposures at or more than 10 mrem begin reporting at 10 mrem and report in increments of 10 mrem.

Dosimeter Type	N (DDE, LDE, SDE)	M (SDE Only)	SL (DDE, LDE, SDE)
Lunar [®]	1	-	10
inLight [®]	5	-	10
Whole Body Beta	-	10	10
Ring	-	50	-
Neutron [®] Neutron Fast	20	-	-
Neutron [®] Neutron Thermal/Fast	10	-	-

Special Calculations: Special dose calculations can be applied to radiation workers who wear lead aprons.

ED1 = two dosimeters: one worn at the waist level under lead apron and one worn at the collar level outside lead apron. $1.5 \text{ (Neut DDE)} + 0.34 \text{ (Collar DDE)} = \text{Assigned Deep Dose Equivalent}$

ED2 = one dosimeter: one worn at the collar level outside lead apron. $0.3 \text{ (Collar SDE)} = \text{Assigned Deep Dose Equivalent}$

ED3 = one dosimeter: one worn at the collar level outside lead apron. $\text{Collar DDE} / 5.1 = \text{Assigned Deep Dose Equivalent}$

ED4 = Lens of Eye dosimeter. $0.5 \text{ (Lens of Eye LDE)} = \text{Assigned Lens of Eye Dose Equivalent}$

ED5 = Lens of Eye dosimeter. $6.175 \text{ (Lens of Eye LDE)} = \text{Assigned Lens of Eye Dose Equivalent}$

The "ASSIGNED" line follows all of the original whole body dosimeter doses with the ED1 or ED2 calculation results or Landauer's standard Dose Assessment Protocol (deep and shallow whole body dose from the highest reading whole body dosimeter, lens dose from dosimeter closest to the eye).

Ring Dosimeter Readings: Ring dosimeter readings report as a shallow dose.

Fetal Dosimeter: A declared pregnant worker will possess a fetal exposure on an outpage of the report based upon the whole body dosimeter worn closest to the fetus. The fetal dose is reported for the current wear period, plus the estimated dose from conception to declaration (if provided by customer), and the total dose from declaration to present.

Use	Description	Use	Description
AREA	Area Monitor	OEXTRM	Other Extremity
CHEST	Chest	OWHBDY	Other Whole Body
CNTRL	Control	RANKLE	Right Ankle
COLLAR	Collar	RFINGER	Right Hand Ring
EYE	Eye	RUARM	Right Upper Arm
FETAL	Fetal	RULEG	Right Upper Leg
LANKLE	Left Ankle	RWRIST	Right Wrist
LFINGER	Left Hand Ring	SPECL	Special Purpose
LUARM	Left Upper Arm	UPBACK	Upper Back
LULEG	Left Upper Leg	WAIST	Waist
LWBACK	Lower Back	WHBODY	Whole Body
LWRIST	Left Wrist		

Code	Radiation Quality Description (Type and/or Energy)
B	beta
BH	beta high energy, e.g. Strontium, Phosphorus
BL	beta low energy, e.g. Thallium, Krypton
BS	Strontium beta
BT	Thallium beta
BU	Uranium beta
BN	beta, neutron mixture
NF	neutron fast
NT	neutron thermal
P	photon (x or gamma ray)
PS	photon, beta mixture
PBN	photon, beta, neutron mixture
PH	photon high energy greater than 200 keV
PL	photon low energy less than 40 keV
PM	photon medium energy 40 keV to 200 keV
PN	photon, neutron mixture

First Line Explanation

Participant Number: Unique number assigned by Landauer.

Name: Participant to whom the dosimeter is assigned.

Dosimeter: Badge type according to radiation monitoring needs.

Dosimeter	Code	Type of Radiation Monitored				
		Photons		Neutrons		
		X	Gamma	Beta	Fast	Fast/Thermal
inLight Basic	B1P	Yes	Yes	Yes		
inLight Basic	B4P	Yes	Yes	Yes		
inLight Basic	B2C	Yes	Yes	Yes		
inLight Basic	B4C	Yes	Yes	Yes		
inLight LDR	L2P	Yes	Yes	Yes		
inLight LDR	L2J	Yes	Yes	Yes		
inLight LDR	L2T	Yes	Yes	Yes		Yes
inLight LDR	L2D	Yes	Yes	Yes	Yes	Yes
inLight LDR	L4P	Yes	Yes	Yes		
Lunar+	Pa	Yes	Yes	Yes		
Lunar+	Jn	Yes	Yes	Yes	Yes	
Lunar+	Ta	Yes	Yes	Yes		Yes
Lunar+ Export	Pa	Yes	Yes			
Neutrek	N				Yes	
Neutrek	E					Yes
Ring, Single TLD	U	Yes	Yes	Yes		

Deep, Eye and Shallow Dose Equivalents: Deep dose equivalent (DDE) applies to external whole body exposure at a tissue depth of 1 cm (1000 mg/cm²). Eye dose equivalent (EDE) applies to external exposure of the lens at a tissue depth of 0.3 cm (300 mg/cm²).

Shallow dose equivalent (SDE) applies to the external exposure of the skin or extremity at a tissue depth of 0.007 cm (7 mg/cm²) averaged over an area 1 cm².

Deep, eye and shallow dose equivalents report for the time frame indicated by "For Monitoring Period." These doses represent the dose received only for the assessment period specified. Individual radiation component results and combined totals report in separate lines.

Quarterly accumulated results reflect total dose received within a calendar 3-month time frame and the customer defined start day. (Note: Quarterly accumulated values are eliminated for bimonthly service or display "Not applicable.") Year to date accumulation totals dose received from the beginning of the current year to report date. Lifetime accumulation totals all dose received from inception date of dosimeter service to report date, and could include earlier dose history if supplied by customer. Reported quarterly, annual and lifetime dose accumulations represent the doses totaling from all accumulated dosimeters to be reported at the customer level.

Inception Date: The date Landauer began keeping dosimeter records for a given dosimeter for a badging participant on the current customer.

Serial Number: Dosimeter serial number.

Second Line Explanation: Participant's personal information consisting of ID number and birth date. This information can be suppressed on "Duplicate and Original Reports" for privacy and/or posting needs.

Notes: Text messages explaining any abnormalities or comments. The notes with message appear on a separate line below all dosimeter exposure information.

U.S. Patents
6,316,702; 6,127,685; 5,892,234

Breathing Zone Raw Data



www.energylab.com
Analytical Excellence Since 1937

Helena, MT 877-472-6711 • Billings, MT 800-735-4489 • Casper, WY 866-235-0515
Gillette, WY 866-886-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-680-2218

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SENES Consultants Limited
Project: 350180-203 (200) Church Rock, Phase II
Lab ID: C12100693-001
Client Sample ID: CR-BZ-014

Report Date: 11/29/12
Collection Date: 10/09/12 16:56
Date Received: 10/16/12
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	ND	mg/filter		0.0003		SW6020	11/19/12 21:40 / cp
Uranium, Activity	ND	pCi/Filter		0.2		SW6020	11/19/12 21:40 / cp
RADIONUCLIDES							
Radium 226	-0.4	pCi/Filter	U			E903.0	11/27/12 01:41 / trs
Radium 226 precision (±)	0.2	pCi/Filter				E903.0	11/27/12 01:41 / trs
Radium 226 MDC	0.4	pCi/Filter				E903.0	11/27/12 01:41 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration



www.energylab.com
Analytical Excellence Since 1937

Helena, MT 877-472-6711 • Billings, MT 800-735-4489 • Casper, WY 866-235-0515
Gillette, WY 866-886-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-680-2218

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SENES Consultants Limited
Project: 350180-203 (200) Church Rock, Phase II
Lab ID: C12100693-002
Client Sample ID: CR-BZ-015

Report Date: 11/29/12
Collection Date: 10/11/12 16:40
Date Received: 10/16/12
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	ND	mg/filter		0.0003		SW6020	11/19/12 21:46 / cp
Uranium, Activity	ND	pCi/Filter		0.2		SW6020	11/19/12 21:46 / cp
RADIONUCLIDES							
Radium 226	-0.3	pCi/Filter	U		E903.0		11/27/12 01:41 / trs
Radium 226 precision (±)	0.2	pCi/Filter			E903.0		11/27/12 01:41 / trs
Radium 226 MDC	0.4	pCi/Filter			E903.0		11/27/12 01:41 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration



www.energylab.com
Analytical Excellence Since 1937

Helena, MT 877-472-6711 • Billings, MT 800-735-4489 • Casper, WY 866-235-0515
Gillette, WY 866-886-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-680-2218

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SENES Consultants Limited
Project: 350180-203 (200) Church Rock, Phase II
Lab ID: C12100693-003
Client Sample ID: CR-BZ-016

Report Date: 11/29/12
Collection Date: 10/13/12 16:49
Date Received: 10/16/12
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	ND	mg/filter		0.0003		SW6020	11/19/12 21:49 / cp
Uranium, Activity	ND	pCi/Filter		0.2		SW6020	11/19/12 21:49 / cp
RADIONUCLIDES							
Radium 226	-0.4	pCi/Filter	U			E903.0	11/27/12 01:41 / trs
Radium 226 precision (±)	0.2	pCi/Filter				E903.0	11/27/12 01:41 / trs
Radium 226 MDC	0.4	pCi/Filter				E903.0	11/27/12 01:41 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration



www.energylab.com
Analytical Excellence Since 1937

Helena, MT 877-472-6711 • Billings, MT 800-735-4489 • Casper, WY 866-235-0515
Gillette, WY 866-886-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-680-2218

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SENES Consultants Limited
Project: 350180-203 (200) Church Rock, Phase II
Lab ID: C12100897-001
Client Sample ID: CR-BZ-017

Report Date: 11/21/12
Collection Date: 10/15/12 16:30
Date Received: 10/22/12
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	ND	mg/filter		0.0003		SW6020	10/26/12 16:17 / cp
Uranium, Activity	ND	pCi/Filter		0.2		SW6020	10/26/12 16:17 / cp
RADIONUCLIDES							
Radium 226	-0.07	pCi/Filter	U		E903.0		11/20/12 03:21 / trs
Radium 226 precision (±)	0.2	pCi/Filter			E903.0		11/20/12 03:21 / trs
Radium 226 MDC	0.3	pCi/Filter			E903.0		11/20/12 03:21 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration



www.energylabs.com
Analytical Excellence Since 1937

Helena, MT 877-472-6711 • Billings, MT 800-735-4489 • Casper, WY 866-235-0515
Gillette, WY 866-886-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-680-2218

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: SENES Consultants Limited
Project: 350180-203 (200) Church Rock, Phase II
Lab ID: C12100897-002
Client Sample ID: CR-BZ-018

Report Date: 11/21/12
Collection Date: 10/15/12 17:38
Date Received: 10/22/12
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	ND	mg/filter		0.0003		SW6020	10/26/12 16:20 / cp
Uranium, Activity	ND	pCi/Filter		0.2		SW6020	10/26/12 16:20 / cp
RADIONUCLIDES							
Radium 226	-0.06	pCi/Filter	U			E903.0	11/20/12 03:21 / trs
Radium 226 precision (±)	0.2	pCi/Filter				E903.0	11/20/12 03:21 / trs
Radium 226 MDC	0.3	pCi/Filter				E903.0	11/20/12 03:21 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Air Sample Raw Data



Metals Case Narrative

SENES Consultants Limited

Church Rock Phase II – SENES 350180-203 (200)

Work Order Number: 1210222

1. This report consists of 12 filter samples.
2. The samples were received intact at ambient temperature by ALS on 10/16/12.
3. The samples were prepared as described on the Quality Assurance Summary Sheet included with this report.
4. The samples were analyzed based on SW-846, 3rd Edition procedures.

Analysis by ICP-MS followed method 6020A and the current revision of SOP 806.

5. All standards and solutions are NIST traceable and were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold times.

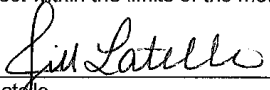
All in house quality control procedures were followed, as described below.

7. General quality control procedures.
 - A preparation (method) blank, laboratory control sample, and laboratory control sample duplicate were digested and analyzed with the samples in this digestion batch.
 - The preparation (method) blank associated with this digestion batch was below the reporting limit for the requested analyte.
 - All laboratory control sample criteria were met.
 - All initial and continuing calibration blanks were below the reporting limit for the requested analyte.
 - All initial and continuing calibration verifications were within the acceptance criteria for the requested analyte.



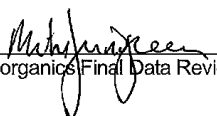
- The interference check samples associated with Method 6020A were analyzed.
8. Matrix specific quality control procedures.
- Sample 1210222-12 was designated as the quality control sample for this analysis. Due to limited sample volume, matrix QC consisted of a post spike and serial dilution.
- Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.
- A post spike was analyzed with this batch. All acceptance criteria for accuracy were met.
 - A serial dilution was analyzed with this batch. All acceptance criteria were met.
9. The samples were analyzed at a dilution in order to protect the ICP-MS from the high metal content of the samples.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Jill Latelle
Inorganics Primary Data Reviewer

10-24-12
Date



Mahajan
Inorganics Final Data Reviewer

10/25/12
Date



Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- Result qualifier -- If the analyte was analyzed for but not detected a "U" is entered.
- QC qualifier -- Specified entries and their meanings are as follows:
 - E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 - M - Duplicate injection precision was not met.
 - N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 - Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 - * - Duplicate analysis (relative percent difference) not within control limits.
 - S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1210222

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203 (200)

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RWPR-AS-065	1210222-1		FILTER	06-Oct-12	13:30
RWPR-AS-066	1210222-2		FILTER	08-Oct-12	16:52
RWPR-AS-067	1210222-3		FILTER	09-Oct-12	16:46
RWPR-AS-068	1210222-4		FILTER	10-Oct-12	16:33
RWPR-AS-069	1210222-5		FILTER	11-Oct-12	16:30
RWPR-AS-070	1210222-6		FILTER	12-Oct-12	16:50
RWPR-AS-071	1210222-7		FILTER	13-Oct-12	17:34
RWPR-AS-072	1210222-8		FILTER	13-Oct-12	17:02
RWPR-AS-073	1210222-9		FILTER	13-Oct-12	17:17
RWPR-AS-074	1210222-10		FILTER	14-Oct-12	16:51
RWPR-AS-075	1210222-11		FILTER	14-Oct-12	16:22
RWPR-AS-076	1210222-12		FILTER	14-Oct-12	16:36



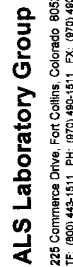
ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TE: (970) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 2028

PROJECT NAME		Church Rock Phase II		SAMPLER		Darrell Liles		DATE		10/15/2012		PAGE		1 of 2		WORKORDER #		1210222	
PROJECT No.		SENES 350190-203 (200)		SITE ID		Churchrock		TURNAROUND		30 day		DISPOSAL		By Lab or		Return to Client			
COMPANY NAME		SENES		EDD FORMAT		Account Number 81612688													
SEND REPORT TO		Darrell Liles		PURCHASE ORDER		SENES Consultants Limited													
ADDRESS		8310 S. Valley Hwy., Suite 3014		BILL TO COMPANY		INVOICE ATTN TO		Andreas Papp											
CITY / STATE / ZIP		Englewood, CO 80112		ADDRESS		121 Granton Dr., Unit #12													
PHONE		(303) 521-1408		CITY / STATE / ZIP		Richmond Hill, ON L4B 3N4													
FAX				PHONE		(905) 764-3380													
E-MAIL		diles@senesusa.com		FAX		(905) 764-3386													
E-MAIL		ades300@senes.ca		E-MAIL		ades300@senes.ca													
Lab ID		Field ID		Matrix		Sample Date		Sample Time		# Sample Pres.		QC		Run Time (min)		Total Flow (ft ³)		Comments	
①		RWPR-AS-065		F		10/6/2012		1330		1		II		332		13,612			
③		RWPR-AS-066		F		10/8/2012		1652		1		II		543		22,263			
③		RWPR-AS-067		F		10/9/2012		1846		1		II		554		22,160			
④		RWPR-AS-068		F		10/10/2012		1633		1		II		428		17,548			
⑤		RWPR-AS-069		F		10/11/2012		1630		1		II		530		21,730			
⑥		RWPR-AS-070		F		10/12/2012		1650		1		II		501		20,040			
⑦		RWPR-AS-071		F		10/13/2012		1734		1		II		600		24,000			
⑧		RWPR-AS-072		F		10/13/2012		1702		1		II		542		21,138			
⑨		RWPR-AS-073		F		10/13/2012		1717		1		II		539		22,099			
⑩		RWPR-AS-074		F		10/14/2012		1651		1		II		535		21,400			
Time Zone (Circle):		EST CST MST PST		Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter															
For metals or anions, please detail analytes below.																			
Comments:																			
Air samples - Inlet flow side is folded inward and marked with X																			
Preservative Key:		1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other		8-4 degrees C 9-5035															
RELINQUISHED BY		Darrell Liles		SIGNATURE		Darrell Liles		PRINTED NAME		Darrell Liles		DATE		10/16/2012		TIME		1432	
RECEIVED BY		C Trumble		RELINQUISHED BY		C Trumble		RECEIVED BY		C Trumble		DATE		10-16-12		TIME		1025	
RELINQUISHED BY				RECEIVED BY				RELINQUISHED BY				RECEIVED BY				TIME			
RELINQUISHED BY				RECEIVED BY				RELINQUISHED BY				RECEIVED BY				TIME			

**ALS Laboratory Group**

2225 Commerce Drive, Fort Collins, Colorado 80524
TE: (900) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202r8

[illegible]



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SENE

Workorder No: 1210222

Project Manager: JK

Initials: CDT Date: 10-16-12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	<input checked="" type="radio"/> DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<input checked="" type="radio"/> RAD ONLY	YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>Amb</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>10</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / ☒ NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 10-16-12

UPS Next Day Air®
UPS Worldwide ExpressSM

Shipping Document

See instructions on back. Visit UPS.com or call 1-800-PICK-UPS® (800-742-5877) for additional information and UPS Tariff/Terms and Conditions.

TRACKING NUMBER 1Z34 684 944 3

SHIPMENT FROM

SHIPPER'S ACCOUNT NO. 875-564

REFERENCE NUMBER 350180-203 (200)

NAME Darrell Liles TELEPHONE 303-717-3257

COMPANY SENES

STREET ADDRESS 8310 S Valley Hwy Suite 3014

CITY AND STATE Englewood CO 80112 ZIP CODE

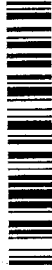
EXTREMELY URGENT DELIVERY TO

NAME Jeff Kizawa TELEPHONE

COMPANY ALS Laboratory Group

STREET ADDRESS 225 Commerce Drive DEPT./FLR. ☐ Residential

CITY AND STATE Fort Collins Colorado 80524 ZIP CODE



3 WEIGHT 001210

4 DIMENSIONS (L x W x H) 12 x 10 x 2

5 TYPE OF SERVICE ☒ **EXPRESS** ☐ **EXPRESS (NFI)**

6 ☐ **DOCUMENTS ONLY** ☐ **SATURDAY** ☐ **SUNDAY**

7 ☐ **DECLARED VALUE** \$ 0

8 ☐ **ADDITIONAL HANDLING CHARGE** \$ 0

9 ☐ **RECEIVERS/THIRD PARTIES UPS ACCOUNT NO.** 010191120

10 SHIPPER'S SIGNATURE X Darrell Liles

11 DATE OF SHIPMENT 10/15/2012

SHIPPER RELEASE ☐

ZIP CODE 80524

CITY AND STATE Fort Collins Colorado

STREET ADDRESS 225 Commerce Drive

COMPANY ALS Laboratory Group

TELEPHONE 303-717-3257

DEPT./FLR. 3014

ZIP CODE 80524

Total Recoverable URANIUM

Method SW6020 Revision A

Sample Results

Lab Name: ALS Environmental -- FC
Client Name: SENES Consultants Limited
Client Project ID: Church Rock Phase II SENES 350180-203 (200)
Work Order Number: 1210222 Final Volume: 100 ml
Reporting Basis: As Received Matrix: FILTER
Prep Method: SW3050B Result Units: UG/sample
Analyst: Ross Miller

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
RWPR-AS-065	1210222-1	10/06/2012	10/18/2012	10/18/2012	N/A	50	0.56	0.05		1 sample
RWPR-AS-066	1210222-2	10/08/2012	10/18/2012	10/18/2012	N/A	50	0.45	0.05		1 sample
RWPR-AS-067	1210222-3	10/09/2012	10/18/2012	10/18/2012	N/A	50	0.95	0.05		1 sample
RWPR-AS-068	1210222-4	10/10/2012	10/18/2012	10/18/2012	N/A	50	1.3	0.05		1 sample
RWPR-AS-069	1210222-5	10/11/2012	10/18/2012	10/18/2012	N/A	50	1.4	0.05		1 sample
RWPR-AS-070	1210222-6	10/12/2012	10/18/2012	10/18/2012	N/A	50	0.38	0.05		1 sample
RWPR-AS-071	1210222-7	10/13/2012	10/18/2012	10/18/2012	N/A	50	1.7	0.05		1 sample
RWPR-AS-072	1210222-8	10/13/2012	10/18/2012	10/18/2012	N/A	50	0.48	0.05		1 sample
RWPR-AS-073	1210222-9	10/13/2012	10/18/2012	10/18/2012	N/A	50	0.62	0.05		1 sample
RWPR-AS-074	1210222-10	10/14/2012	10/18/2012	10/18/2012	N/A	50	1.9	0.05		1 sample
RWPR-AS-075	1210222-11	10/14/2012	10/18/2012	10/18/2012	N/A	50	0.48	0.05		1 sample
RWPR-AS-076	1210222-12	10/14/2012	10/18/2012	10/18/2012	N/A	50	0.44	0.05		1 sample

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *im1210222-1*

Date Printed: Wednesday, October 24, 2012

ALS Environmental -- FC

LIMS Version: 6.618

Page 1 of 1

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1210222

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: IP121018-21MB

Sample Matrix: FILTER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 18-Oct-12

Date Analyzed: 18-Oct-12

Prep Method: SW3050 Rev B

Prep Batch: IP121018-21

QCBatchID: IP121018-21-1

Run ID: IM121018-11A1

Cleanup: NONE

Basis: N/A

File Name: 081SMPL_

Sample Aliquot: 1 sample

Final Volume: 100 ml

Result Units: UG/sample

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-61-1	URANIUM	50	0.05	0.05	U	

Data Package ID: im1210222-1

Date Printed: Wednesday, October 24, 2012

ALS Environmental -- FC

LIMS Version: 6.618

Page 1 of 1

ICPMS Metals

Method SW6020A

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1210222

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: IP121018-21LCS	Sample Matrix: FILTER % Moisture: N/A Date Collected: N/A Date Extracted: 10/18/2012 Date Analyzed: 10/18/2012 Prep Method: SW3050B	Prep Batch: IP121018-21 QCBatchID: IP121018-21-1 Run ID: IM121018-11A1 Cleanup: NONE Basis: N/A File Name: 082SMPL_	Sample Aliquot: 1 sample Final Volume: 100 ml Result Units: UG/sample Clean DF: 1
------------------------	--	--	--

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-61-1	URANIUM	10	9.27	0.05		93	80 - 120%

Lab ID: IP121018-21LCSD	Sample Matrix: FILTER % Moisture: N/A Date Collected: N/A Date Extracted: 10/18/2012 Date Analyzed: 10/18/2012 Prep Method: SW3050B	Prep Batch: IP121018-21 QCBatchID: IP121018-21-1 Run ID: IM121018-11A1 Cleanup: NONE Basis: N/A File Name: 083SMPL_	Sample Aliquot: 1 sample Final Volume: 100 ml Result Units: UG/sample Clean DF: 1
-------------------------	--	--	--

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
7440-61-1	URANIUM	10	9.3	0.05		93	20	0

Data Package ID: *im1210222-1*

Date Printed: Wednesday, October 24, 2012

ALS Environmental -- FC

LIMS Version: 6.618

Page 1 of 1

ICPMS Metals

Method SW6020

Analytical Spike Sample Recovery

Lab Name: ALS Environmental -- FC

Work Order Number: 1210222

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-076

LabID: 1210222-12A

Run ID: IM121018-11A1

Date Analyzed: 18-Oct-12

Result Units: ug/l

Target Analyte	Sample Result	Samp Qual	PS Result	PS Qual	Spike Added	PS % Rec.	Control Limits
URANIUM	0.0890		2.02		2	97	75 - 125%

Data Package ID: *im1210222-1*

Date Printed: Wednesday, October 24, 2012

ALS Environmental -- FC

LIMS Version: 6.618

Page 1 of 1

QUALITY ASSURANCE SUMMARY SHEET

ALS W.O. # / BATCH 1210222
 TEST Ra-226, Metals
 METHOD PERP
 SOP/REV (PREP) N/A
 SOP/REV (ANAL) L

Briefly document any QA or other problems or deviations associated with the analysis of samples. Problems could result from: log-in, color, odor, dilution, consistency, scheduling, equipment, or instrumentation, or may include documentation of minor deviations necessary due to unique DOQ's or sample characteristics.

1. Samples in work order 1210222 consisted of large glass fiber filters to be analyzed for Ra226 and Metals. The samples were placed into plastic cups and digested by adding 50 mL nitric acid, and 50 mL hydrochloric acid. At this time a MB was created. After drying the digestions on the hotblock, 10 ml nitric acid and ~90 ml DI water were added. The samples were filtered through fluted qualitative filter paper and brought to a volume of 100 mL with DI water. Samples were then split for appropriate tests.

2. The digestate is a common solution for multiple analyses. Tracing and spiking was performed after the appropriate aliquot was taken from the common digestate for the analysis of Ra-226 and Metals. This reduces the potential for interferences caused by the different matrices used in the tracing and spiking solutions.

3. Per project manager, aliquots were taken as listed below.
- | | |
|--------|-------------------------------|
| Metals | 10 ml or .1 sample equivalent |
| Ra226 | 90 ml or .9 sample equivalent |

The following equation was used to calculate the filter equivalent:

$$\text{Sample Equivalent (x)} = \frac{(\text{Digestate volume taken for analysis})}{(\text{Total volume of digestate})}$$

TECHNICIAN/ANALYST

DATE

DEPARTMENT MANAGER

DATE

Sample Condition Form (Solids)				
Analysis: <u>PSW</u>		Method: <u>prep</u>		
Analysis Date: <u>10/18/12</u>		Sample Condition: (Visual Appearance of Analysis Aliquot at Time of Prep)		
Work Order	Sample ID	Dry/Wet/Moist	Texture	Remarks
<u>1210222</u>	<u>1</u>	<u>As received</u>	<u>Alfalfa</u>	<u>large glass fiber</u>
	<u>2</u>			
	<u>3</u>			
	<u>4</u>			
	<u>5</u>			
	<u>6</u>			
	<u>7</u>			
	<u>8</u>			
	<u>9</u>			
	<u>10</u>			
	<u>11</u>			
	<u>12</u>			

PSW
10/18/12



Radium-226 Case Narrative


SENES Consultants Limited

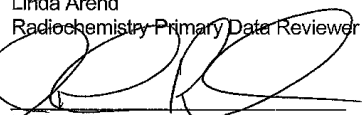
Church Rock Phase II – SENES 350180-203 (200)

Work Order Number: 1210222

1. This report consists of the analytical results for 12 composite filter samples received by ALS on 10/16/2012.
2. These samples were prepared and analyzed according to the current revisions of SOP 783, with procedure modifications outlined on QASS #422646. The analyses were completed on 10/26/2012.
3. The analysis results for these samples are reported on an 'As Received' basis in units of pCi/sample.
4. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.
5. No anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.


Linda Arend
Radiochemistry Primary Data Reviewer


Radiochemistry Final Data Reviewer

10/27/12
Date

10/29/12
Date

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1210222

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203 (200)

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RWPR-AS-065	1210222-1		FILTER	06-Oct-12	13:30
RWPR-AS-066	1210222-2		FILTER	08-Oct-12	16:52
RWPR-AS-067	1210222-3		FILTER	09-Oct-12	16:46
RWPR-AS-068	1210222-4		FILTER	10-Oct-12	16:33
RWPR-AS-069	1210222-5		FILTER	11-Oct-12	16:30
RWPR-AS-070	1210222-6		FILTER	12-Oct-12	16:50
RWPR-AS-071	1210222-7		FILTER	13-Oct-12	17:34
RWPR-AS-072	1210222-8		FILTER	13-Oct-12	17:02
RWPR-AS-073	1210222-9		FILTER	13-Oct-12	17:17
RWPR-AS-074	1210222-10		FILTER	14-Oct-12	16:51
RWPR-AS-075	1210222-11		FILTER	14-Oct-12	16:22
RWPR-AS-076	1210222-12		FILTER	14-Oct-12	16:36



ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TE: (970) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202a

WORKORDER # 12102222

3 of 23

PROJECT NAME	Church Rock Phase II	SAMPLER	Darrell Liles	DATE	10/15/2012	PAGE	1 of 2		
PROJECT No.	SENES 350190-203 (200)	SITE ID	Churchrock	TURNAROUND	30 day	DISPOSAL	By Lab or Return to Client		
COMPANY NAME	SENES	EDD FORMAT							
SEND REPORT TO	Darrell Liles	PURCHASE ORDER	Account Number 816126858						
ADDRESS	8310 S. Valley Hwy., Suite 3014	BILL TO COMPANY	SENES Consultants Limited						
CITY / STATE / ZIP	Englewood, CO 80112	INVOICE ATTN TO	Andrea Pigo						
PHONE	(303) 521-1408	ADDRESS	121 Granton Dr., Unit #12						
FAX		CITY / STATE / ZIP	Richmond Hill, ON L4B 3N4						
E-MAIL	diles@senesusa.com	PHONE	(905) 764-3380						
		FAX	(905) 764-3385						
		E-MAIL	ades300@senes.ca						
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Sample Pres.	QC	Run Time (min)	Total Flow (ft ³)	Comments
①	RWPR-AS-065	F	10/6/2012	1330	1	II	X	332	13,612
②	RWPR-AS-066	F	10/6/2012	1652	1	II	X	543	22,263
③	RWPR-AS-067	F	10/9/2012	1846	1	II	X	554	22,160
④	RWPR-AS-068	F	10/10/2012	1633	1	II	X	428	17,548
⑤	RWPR-AS-069	F	10/11/2012	1630	1	II	X	530	21,730
⑥	RWPR-AS-070	F	10/12/2012	1650	1	II	X	501	20,040
⑦	RWPR-AS-071	F	10/13/2012	1734	1	II	X	600	24,000
⑧	RWPR-AS-072	F	10/13/2012	1702	1	II	X	542	21,138
⑨	RWPR-AS-073	F	10/13/2012	1717	1	II	X	539	22,099
⑩	RWPR-AS-074	F	10/14/2012	1651	1	II	X	535	21,400

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter
For metals or anions, please detail analytes below.

Comments:	QC PACKAGE (check below)
Air samples - Inlet flow side is folded inward and marked with X	X LEVEL I (Standard QC)
	LEVEL II (Std QC + firma)
	LEVEL VI (Std QC + firma + raw data)

Preservative Key:	1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035
-------------------	---

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	<i>Darrell Liles</i>	Darrell Liles	10/16/2012	1432
RELINQUISHED BY	<i>C Trumble</i>	C Trumble	10-16-12	1025
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



Chain-of-Custody

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Form 2021r8

[illegible]

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filler

For metals or anions, please detail analytes below.

Comments:

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	<i>Donald Kib</i>	Darrell Liles	10/6/012	1432
RECEIVED BY	<i>C. Murrell</i>	<i>C. T. Murrell</i>	10-16-12	1025
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				

Air samples - Inlet flow side is folded inward and marked with X

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-NaHSO₄ 7-Other 8-4 degrees C 9-5035

RECEIVED BY



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SENE

Workorder No: 1210222

Project Manager: JK

Initials: CDT Date: 10-16-12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	<u>NONE</u>	YES	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	<u>YES</u>	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
7. Were airbills / shipping documents present and/or removable?	<u>DROP OFF</u>	<u>YES</u>	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<u>N/A</u>	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<u>N/A</u>	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<u>N/A</u>	YES	NO
16. Were the samples shipped on ice?		YES	<u>NO</u>
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<u>RAD ONLY</u>	YES	<u>NO</u>
Cooler #: <u>1</u>			
Temperature (°C): <u>Amb</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>10</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>YES</u> / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 10-16-12

[illegible]010191120 1/07 S

UPS COPY

This form not needed with UPS Internet Shipping at UPS.com

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121018-2MB	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 18-Oct-12 Date Prepared: 18-Oct-12 Date Analyzed: 26-Oct-12	Prep Batch: RE121018-2 QCBatchID: RE121018-2-1 Run ID: RE121018-2A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
----------------------	--	--	--

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0 +/- 0.13	0.07	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121018-2LCS	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 18-Oct-12 Date Prepared: 18-Oct-12 Date Analyzed: 26-Oct-12	Prep Batch: RE121018-2 QCBatchID: RE121018-2-1 Run ID: RE121018-2A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
-----------------------	--	--	--

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	48.8 +/- 9.0	0.2	50.00	97.5	57 - 126	P

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121018-2LCSD	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 18-Oct-12 Date Prepared: 18-Oct-12 Date Analyzed: 26-Oct-12	Prep Batch: RE121018-2 QCBatchID: RE121018-2-1 Run ID: RE121018-2A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
------------------------	--	--	--

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	49.7 +/- 9.2	0.2	50.00	99.5	57 - 126	P

Comments:

Qualifiers/Flags: U - Result is less than the sample specific MDC. LT - Result is less than Requested MDC, greater than sample specific MDC. Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed. Y2 - Chemical Yield outside default limits. L - LCS Recovery below lower control limit. H - LCS Recovery above upper control limit. P - LCS Recovery within control limits. M - The requested MDC was not met. M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.	Abbreviations: TPU - Total Propagated Uncertainty MDC - Minimum Detectable Concentration
--	---

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC

Work Order Number: 1210222

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID:	
Lab ID:	RE121018-2LCSD

Sample Matrix: FILTER

Prep SOP: PAI 783 Rev 10

Date Collected: 18-Oct-12

Date Prepared: 18-Oct-12

Date Analyzed: 26-Oct-12

Prep Batch: RE121018-2

QCBatchID: RE121018-2-1

Run ID: RE121018-2A

Count Time: 15 minutes

Final Aliquot: 0.900 sample

Prep Basis: As Received

Moisture(%): NA

Result Units: pCi/sample

File Name: Manual Entry

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	48.8 +/- 9.0	0.2	P	49.7 +/- 9.2	0.2	P	0.0753	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

LT - Result is less than Request MDC, greater than sample specific MDC

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty

DER - Duplicate Error Ratio

BDL - Below Detection Limit

NR - Not Reported

Data Package ID: RE1210222-1

Date Printed: Saturday, October 27, 2012

ALS Environmental -- FC

LIMS Version: 6.618

Page 1 of 1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-065	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-1	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 06-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.08 +/- 0.21	0.39	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-066	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-2	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 08-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.03 +/- 0.23	0.45	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-067	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-3	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 09-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.09 +/- 0.25	0.45	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-068	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-4	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 10-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.48 +/- 0.29	0.34	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-069	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-5	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 11-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.21 +/- 0.25	0.40	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-070	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-6	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 12-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.13 +/- 0.20	0.33	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-071	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-7	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 13-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.66 +/- 0.32	0.27	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-072	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-8	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 13-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.24 +/- 0.19	0.24	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-073	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-9	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 13-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.45 +/- 0.25	0.21	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-074	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-10	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 14-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.88 +/- 0.36	0.25	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-075	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-11	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 14-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.68 +/- 0.37	0.44	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210222
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-076	Sample Matrix: FILTER	Prep Batch: RE121018-2	Final Aliquot: 0.900 sample
Lab ID: 1210222-12	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121018-2-1	Prep Basis: As Received
	Date Collected: 14-Oct-12	Run ID: RE121018-2A	Moisture(%): NA
	Date Prepared: 18-Oct-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 26-Oct-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.87 +/- 0.36	0.21	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210222-1

QUALITY ASSURANCE SUMMARY SHEET

ALS W.O. # / BATCH 1210222
 TEST Ra-226, Metals
 METHOD POAP
 SOP/REV (PREP) N/A
 SOP/REV (ANAL) I

Briefly document any QA or other problems or deviations associated with the analysis of samples. Problems could result from: log-in, color, odor, dilution, consistency, scheduling, equipment, or instrumentation, or may include documentation of minor deviations necessary due to unique DQO's or sample characteristics.

1. Samples in work order 1210222 consisted of large glass fiber filters to be analyzed for Ra226 and Metals. The samples were placed into plastic cups and digested by adding 50 mL nitric acid, and 50 mL hydrochloric acid. At this time a MB was created. After drying the digestions on the hotblock, 10 ml nitric acid and ~90 ml DI water were added. The samples were filtered through fluted qualitative filter paper and brought to a volume of 100 mL with DI water. Samples were then split for appropriate tests.

2. The digestate is a common solution for multiple analyses. Tracing and spiking was performed after the appropriate aliquot was taken from the common digestate for the analysis of Ra-226 and Metals. This reduces the potential for interferences caused by the different matrices used in the tracing and spiking solutions.

3. Per project manager, aliquots were taken as listed below.
- | | |
|--------|-------------------------------|
| Metals | 10 ml or .1 sample equivalent |
| Ra226 | 90 ml or .9 sample equivalent |

The following equation was used to calculate the filter equivalent:

$$\text{Sample Equivalent (x)} = \frac{(\text{Digestate volume taken for analysis})}{(\text{Total volume of digestate})}$$

TECHNICIAN/ANALYST

DATE

DEPARTMENT MANAGER

DATE



Metals Case Narrative

SENES Consultants Limited

Church Rock Phase II – SENES 350180-203 (200)

Work Order Number: 1210310

1. This report consists of 10 filter samples.
2. The samples were received intact at ambient temperature by ALS on 10/22/12.
3. The samples were prepared as described on the Quality Assurance Summary Sheet included with this report.
4. The samples were analyzed based on SW-846, 3rd Edition procedures.

Analysis by ICP-MS followed method 6020A and the current revision of SOP 806.

5. All standards and solutions are NIST traceable and were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold times.


All in house quality control procedures were followed, as described below.

7. General quality control procedures.
 - A preparation (method) blank, laboratory control sample, and laboratory control sample duplicate were digested and analyzed with the samples in this digestion batch.
 - The preparation (method) blank associated with this digestion batch was below the reporting limit for the requested analyte.
 - All laboratory control sample criteria were met.
 - All initial and continuing calibration blanks were below the reporting limit for the requested analyte.
 - All initial and continuing calibration verifications were within the acceptance criteria for the requested analyte.



- The interference check samples associated with Method 6020A were analyzed.
8. Matrix specific quality control procedures.
- Sample 1210310-10 was designated as the quality control sample for this analysis. Due to limited sample volume, matrix QC consisted of a post spike and serial dilution.
- Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.
- A post spike was analyzed with this batch. All acceptance criteria for accuracy were met.
 - A serial dilution was analyzed with this ICP batch.
9. The samples were analyzed at a dilution in order to protect the ICP-MS from the high metal content.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Jill Latelle
Inorganics Primary Data Reviewer

11-7-12
Date



Inorganics Final Data Reviewer

11-7-12
Date



Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- Result qualifier -- If the analyte was analyzed for but not detected a "U" is entered.
- QC qualifier -- Specified entries and their meanings are as follows:
 - E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 - M - Duplicate injection precision was not met.
 - N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 - Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 - * - Duplicate analysis (relative percent difference) not within control limits.
 - S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1210310

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203 (200)

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RWPR-AS-077	1210310-1		FILTER	15-Oct-12	
RWPR-AS-078	1210310-2		FILTER	15-Oct-12	
RWPR-AS-079	1210310-3		FILTER	15-Oct-12	
RWPR-AS-080	1210310-4		FILTER	16-Oct-12	
RWPR-AS-081	1210310-5		FILTER	16-Oct-12	
RWPR-AS-082	1210310-6		FILTER	17-Oct-12	
RWPR-AS-083	1210310-7		FILTER	17-Oct-12	
RWPR-AS-084	1210310-8		FILTER	17-Oct-12	
RWPR-AS-085	1210310-9		FILTER	18-Oct-12	
RWPR-AS-086	1210310-10		FILTER	18-Oct-12	



ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202/8

PROJECT NAME	Church Rock Phase II	SAMPLER	Darrell Liles	DATE	10/19/2012	WORKORDER #	1210310			
PROJECT No.	SENES 350180-203 (200)	SITE ID	Churchrock	TURNAROUND	30 day	PAGE	1 of 2			
COMPANY NAME	SENES	EDO FORMAT	Account Number 816128858							
SEND REPORT TO	Darrell Liles	BILL TO COMPANY	SENES Consultants Limited							
ADDRESS	8310 S. Valley Hwy., Suite 3014	INVOICE ATTN TO	Andrea Pegg							
CITY / STATE / ZIP	Englewood, CO 80112	ADDRESS	121 Granton Dr., Unit #12							
PHONE	(303) 521-1406	CITY / STATE / ZIP	Richmond Hill, ON L4B 3N4							
FAX		PHONE	(905) 764-9380							
E-MAIL	dliles@senesusa.com	FAX	(905) 764-9386							
		E-MAIL	abegg@senes.ca							
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Sample	Pres.	QC	Run Time (min)	Total Flow (ft ³)	Comments
①	RWPR-AS-077	F	10/15/2012		1	II	X	549	21,960	
②	RWPR-AS-078	F	10/15/2012		1	II	X	293	11,720	
③	RWPR-AS-079	F	10/15/2012		1	II	X	300	12,600	
④	RWPR-AS-080	F	10/16/2012		1	II	X	607	24,200	
⑤	RWPR-AS-081	F	10/16/2012		1	II	X	603	24,723	
⑥	RWPR-AS-082	F	10/17/2012		1	II	X	579	23,160	
⑦	RWPR-AS-083	F	10/17/2012		1	II	X	571	22,840	
⑧	RWPR-AS-084	F	10/17/2012		1	II	X	561	23,001	
⑨	RWPR-AS-085	F	10/18/2012		1	II	X	500	20,000	
⑩	RWPR-AS-086	F	10/18/2012		1	II	X	490	20,090	

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filler
For metals or anions, please detail analytes below.

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	<i>Darrell Liles</i>	Darrell Liles	10/15/2012	1422
RECEIVED BY	<i>C. Trumble</i>	C. Trumble	10-22-12	1235
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

Comments:
Air samples - inlet flow side is folded inward and marked with X

5 of 13

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8.4 degrees C 9-5035



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Senes Workorder No: 1210310
Project Manager: JK Initials: CDT Date: 10-22-12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	NONE	<input checked="" type="radio"/> YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used* #2 #4		RAD ONLY	YES <input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>Amb</u>			
No. of custody seals on cooler: <u>1</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>12</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / ☒ NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 10-22-12



UPS Ground S.D.P.

Shipping Document

WEIGHT

WEIGHT

DIMENSIONAL
WEIGHT
If Applicable

LARGE
PACKAGE

SHIPPER
RELEASE

SHIPMENT FROM

UPS
ACCOUNT
NO.

875-564

REFERENCE NUMBER

350180-203(200)

Darrell Liles

TELEPHONE

303 711

SENES

8310 S Valley Hwy Suite

Englewood CO 80112

DELIVERY TO

TELEPHONE

Jeff Kujawa

ALS Laboratory Group

205 Commerce Drive

Fort Collins Colorado 80524

0306528 ADCPrinter US 8829 Oct 19 21:31:44 2012 HIP 12.1.6 LP20



CO 80524-0000



(420) 80524-0000

UPS GROUND 1210310

TRACKING #: K190 7185 229



K190 718 5229

TRACKING NUMBER

021295 1/10 FRD

United Parcel Service, Louisville, KY

Total Recoverable URANIUM

Method SW6020 Revision A

Sample Results

Lab Name: ALS Environmental -- FC
Client Name: SENES Consultants Limited
Client Project ID: Church Rock Phase II SENES 350180-203 (200)
Work Order Number: 1210310 Final Volume: 100 ml
Reporting Basis: As Received Matrix: FILTER
Prep Method: SW3050B Result Units: UG/sample
Analyst: Ross Miller

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
RWPR-AS-077	1210310-1	10/15/2012	11/01/2012	11/01/2012	N/A	50	0.87	0.05		1 sample
RWPR-AS-078	1210310-2	10/15/2012	11/01/2012	11/01/2012	N/A	50	0.29	0.05		1 sample
RWPR-AS-079	1210310-3	10/15/2012	11/01/2012	11/01/2012	N/A	50	0.64	0.05		1 sample
RWPR-AS-080	1210310-4	10/16/2012	11/01/2012	11/01/2012	N/A	50	1.3	0.05		1 sample
RWPR-AS-081	1210310-5	10/16/2012	11/01/2012	11/01/2012	N/A	50	1.2	0.05		1 sample
RWPR-AS-082	1210310-6	10/17/2012	11/01/2012	11/01/2012	N/A	50	0.55	0.05		1 sample
RWPR-AS-083	1210310-7	10/17/2012	11/01/2012	11/01/2012	N/A	50	0.62	0.05		1 sample
RWPR-AS-084	1210310-8	10/17/2012	11/01/2012	11/01/2012	N/A	50	0.82	0.05		1 sample
RWPR-AS-085	1210310-9	10/18/2012	11/01/2012	11/01/2012	N/A	50	1.6	0.05		1 sample
RWPR-AS-086	1210310-10	10/18/2012	11/01/2012	11/01/2012	N/A	50	1.3	0.05		1 sample

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *im1210310-1*

Date Printed: Wednesday, November 07, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 1 of 1

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1210310

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: IP121101-22MB

Sample Matrix: FILTER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 01-Nov-12

Date Analyzed: 01-Nov-12

Prep Method: SW3050 Rev B

Prep Batch: IP121101-22

QCBatchID: IP121101-22-1

Run ID: IM121101-11A1

Cleanup: NONE

Basis: N/A

File Name: 001SMPL_

Sample Aliquot: 1 sample

Final Volume: 100 ml

Result Units: UG/sample

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-61-1	URANIUM	50	0.05	0.05	U	

Data Package ID: *im1210310-1*

Date Printed: Wednesday, November 07, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 1 of 1

ICPMS Metals

Method SW6020A

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1210310

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: IP121101-22LCS	Sample Matrix: FILTER % Moisture: N/A Date Collected: N/A Date Extracted: 11/01/2012 Date Analyzed: 11/01/2012 Prep Method: SW3050B	Prep Batch: IP121101-22 QCBatchID: IP121101-22-1 Run ID: IM121101-11A1 Cleanup: NONE Basis: N/A File Name: 002SMPL_	Sample Aliquot: 1 sample Final Volume: 100 ml Result Units: UG/sample Clean DF: 1
------------------------	--	--	--

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-61-1	URANIUM	10	9.34	0.05		93	80 - 120%

Lab ID: IP121101-22LCSD	Sample Matrix: FILTER % Moisture: N/A Date Collected: N/A Date Extracted: 11/01/2012 Date Analyzed: 11/01/2012 Prep Method: SW3050B	Prep Batch: IP121101-22 QCBatchID: IP121101-22-1 Run ID: IM121101-11A1 Cleanup: NONE Basis: N/A File Name: 003SMPL_	Sample Aliquot: 1 sample Final Volume: 100 ml Result Units: UG/sample Clean DF: 1
-------------------------	--	--	--

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
7440-61-1	URANIUM	10	9.39	0.05		94	20	1

Data Package ID: *im1210310-1*

Date Printed: Wednesday, November 07, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 1 of 1

ICPMS Metals

Method SW6020

Analytical Spike Sample Recovery

Lab Name: ALS Environmental -- FC

Work Order Number: 1210310

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-086

LabID: 1210310-10A

Run ID: IM121101-11A1

Date Analyzed: 01-Nov-12

Result Units: ug/l

Target Analyte	Sample Result	Samp Qual	PS Result	PS Qual	Spike Added	PS % Rec.	Control Limits
URANIUM	0.266		2.20		2	97	75 - 125%

Data Package ID: *im1210310-1*

Date Printed: Wednesday, November 07, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 1 of 1

QUALITY ASSURANCE SUMMARY SHEET

ALS W.O. # / BATCH 1210310
 TEST prep, Ra-226, Metals
 METHOD prep
 SOP/REV (PREP)
 SOP/REV (ANAL)

Briefly document any QA or other problems or deviations associated with the analysis of samples. Problems could result from: log-in, color, odor, dilution, consistency, scheduling, equipment, or instrumentation, or may include documentation of minor deviations necessary due to unique DQO's or sample characteristics.

1. Samples in work order 1210310 consisted of large glass fiber filters to be analyzed for Ra226 and Metals. The samples were placed into plastic cups and digested by adding 50 mL nitric acid, and 50 mL hydrochloric acid. At this time a MB was created. After drying the digestions on the hotblock, 10 ml nitric acid and ~90 ml DI water were added. The samples were filtered through fluted qualitative filter paper and brought to a volume of 100 mL with DI water. Samples were then split for appropriate tests.

2. The digestate is a common solution for multiple analyses. Tracing and spiking was performed after the appropriate aliquot was taken from the common digestate for the analysis of Ra-226 and Metals. This reduces the potential for interferences caused by the different matrices used in the tracing and spiking solutions.

3. Per project manager, aliquots were taken as listed below.
- | | |
|--------|-------------------------------|
| Metals | 10 ml or .1 sample equivalent |
| Ra226 | 90 ml or .9 sample equivalent |

The following equation was used to calculate the filter equivalent:

$$\text{Sample Equivalent (x)} = \frac{(\text{Digestate volume taken for analysis})}{(\text{Total volume of digestate})}$$

TECHNICIAN/ANALYST [Signature]

DATE 11/1/12

DEPARTMENT MANAGER [Signature]

DATE 11/1/12

Sample Condition Form (Solids)				
Analysis: <u>BC</u>				
Analysis Date: <u>10/31/12</u>		Method: <u>PRP</u>		
Sample Condition (Visual Appearance of Analysis Aliquot at Time of Prep)				
Work Order	Sample ID	Dry/Wet/Moist	Texture	Remarks
<u>1210310</u>	<u>1</u>	<u>As Rec'd</u>	<u>Alter</u>	<u>Large glass fiber filters</u>
	<u>2</u>			
	<u>3</u>			
	<u>4</u>			
	<u>5</u>			
	<u>6</u>			
	<u>7</u>			
	<u>8</u>			
	<u>9</u>			
	<u>10</u>			
<u>BC</u> <u>11/1/12</u>				



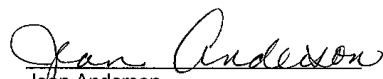
Radium-226 Case Narrative

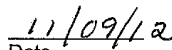
SENES Consultants Limited Church Rock Phase II – SENES 350180-203 (200)

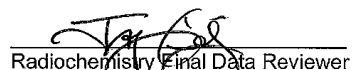
Work Order Number: 1210310


1. This report consists of the analytical results for 10 composite filter samples received by ALS on 10/22/2012.
2. These samples were prepared and analyzed according to the current revisions of SOP 783, with procedure modifications outlined on QASS #422651. The analyses were completed on 11/08/2012.
3. The analysis results for these samples are reported on an 'As Received' basis in units of pCi/sample.
4. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.
5. No anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.


Jean Anderson
Radiochemistry Primary Data Reviewer


Date


Radiochemistry Final Data Reviewer


Date

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1210310

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203 (200)

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RWPR-AS-077	1210310-1		FILTER	15-Oct-12	
RWPR-AS-078	1210310-2		FILTER	15-Oct-12	
RWPR-AS-079	1210310-3		FILTER	15-Oct-12	
RWPR-AS-080	1210310-4		FILTER	16-Oct-12	
RWPR-AS-081	1210310-5		FILTER	16-Oct-12	
RWPR-AS-082	1210310-6		FILTER	17-Oct-12	
RWPR-AS-083	1210310-7		FILTER	17-Oct-12	
RWPR-AS-084	1210310-8		FILTER	17-Oct-12	
RWPR-AS-085	1210310-9		FILTER	18-Oct-12	
RWPR-AS-086	1210310-10		FILTER	18-Oct-12	



ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202/8

PROJECT NAME	Church Rock Phase II	SAMPLER	Darrell Liles	DATE	10/19/2012	WORKORDER #	1210310			
PROJECT No.	SENES 350180-203 (200)	SITE ID	Churchrock	TURNAROUND	30 day	PAGE	1 of 2			
COMPANY NAME	SENES	EDO FORMAT	Account Number 816128858							
SEND REPORT TO	Darrell Liles	PURCHASE ORDER	SENES Consultants Limited							
ADDRESS	8310 S. Valley Hwy., Suite 3014	INVOICE ATTN TO	Andreas Pegg							
CITY / STATE / ZIP	Englewood, CO 80112	ADDRESS	121 Granton Dr., Unit #12							
PHONE	(303) 521-1406	CITY / STATE / ZIP	Richmond Hill, ON L4B 3N4							
FAX		PHONE	(905) 764-9380							
E-MAIL	dliles@senesusa.com	FAX	(905) 764-9386							
		E-MAIL	abegg@senes.ca							
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Sample	Pres.	QC	Run Time (min)	Total Flow (ft ³)	Comments
①	RWPR-AS-077	F	10/15/2012		1	II	X	549	21,960	
②	RWPR-AS-078	F	10/15/2012		1	II	X	293	11,720	
③	RWPR-AS-079	F	10/15/2012		1	II	X	300	12,600	
④	RWPR-AS-080	F	10/16/2012		1	II	X	607	24,200	
⑤	RWPR-AS-081	F	10/16/2012		1	II	X	603	24,723	
⑥	RWPR-AS-082	F	10/17/2012		1	II	X	579	23,160	
⑦	RWPR-AS-083	F	10/17/2012		1	II	X	571	22,840	
⑧	RWPR-AS-084	F	10/17/2012		1	II	X	561	23,001	
⑨	RWPR-AS-085	F	10/18/2012		1	II	X	500	20,000	
⑩	RWPR-AS-086	F	10/18/2012		1	II	X	490	20,090	

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filler
For metals or anions, please detail analytes below.

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	<i>Darrell Liles</i>	Darrell Liles	10/15/2012	1422
RECEIVED BY	<i>C. Trumble</i>	C. Trumble	10-22-12	1235
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

Comments:
Air samples - inlet flow side is folded inward and marked with X

3 of 20

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8.4 degrees C 9-5035



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Senes

Workorder No: 1210310

Project Manager: JK

Initials: CDT Date: 10-22-12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	NONE	<input checked="" type="radio"/> YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used* #2 #4		RAD ONLY	YES <input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>Amb</u>			
No. of custody seals on cooler: <u>1</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>12</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / ☒ NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 10-22-12



UPS Ground S.D.P.

Shipping Document

WEIGHT

WEIGHT

DIMENSIONAL
WEIGHT
If Applicable

LARGE
PACKAGE

SHIPPER
RELEASE

SHIPMENT FROM

UPS
ACCOUNT
NO.

875-564

REFERENCE NUMBER

350180-203(200)

Darrell Liles

TELEPHONE

303 711

SENES

8310 S Valley Hwy Suite

Englewood CO 80112

DELIVERY TO

TELEPHONE

Jeff Kujawa

ALS Laboratory Group

205 Commerce Drive

Fort Collins Colorado 80524

0308528 ADCP:inter US 8829 Oct 19 21:31:44 2012 HIP 12.1.6 LP20



CO 80524-0000



(420) 80524-0000

UPS GROUND 1210310

TRACKING #: K190 7185 229



K190 718 5229

TRACKING NUMBER

021295 1/10 FRD

United Parcel Service, Louisville, KY

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121101-1MB	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 01-Nov-12 Date Prepared: 01-Nov-12 Date Analyzed: 08-Nov-12	Prep Batch: RE121101-1 QCBatchID: RE121101-1-1 Run ID: RE121101-1A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
----------------------	--	--	--

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.09 +/- 0.14	0.21	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: RE1210310-1

Date Printed: Friday, November 09, 2012

ALS Environmental -- FC
LIMS Version: 6.621

Page 1 of 1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121101-1LCS	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 01-Nov-12 Date Prepared: 01-Nov-12 Date Analyzed: 08-Nov-12	Prep Batch: RE121101-1 QCBatchID: RE121101-1-1 Run ID: RE121101-1A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
-----------------------	--	--	--

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	51.8 +/- 9.6	0.3	50.00	104	57 - 126	P

Comments:

Qualifiers/Flags: U - Result is less than the sample specific MDC. LT - Result is less than Requested MDC, greater than sample specific MDC. Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed. Y2 - Chemical Yield outside default limits. L - LCS Recovery below lower control limit. H - LCS Recovery above upper control limit. P - LCS Recovery within control limits. M - The requested MDC was not met. M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.	Abbreviations: TPU - Total Propagated Uncertainty MDC - Minimum Detectable Concentration
--	---

Data Package ID: RE1210310-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121101-1LCSD	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 01-Nov-12 Date Prepared: 01-Nov-12 Date Analyzed: 08-Nov-12	Prep Batch: RE121101-1 QCBatchID: RE121101-1-1 Run ID: RE121101-1A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
------------------------	--	--	--

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	50.4 +/- 9.3	0.3	50.00	101	57 - 126	P

Comments:

Qualifiers/Flags: U - Result is less than the sample specific MDC. LT - Result is less than Requested MDC, greater than sample specific MDC. Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed. Y2 - Chemical Yield outside default limits. L - LCS Recovery below lower control limit. H - LCS Recovery above upper control limit. P - LCS Recovery within control limits. M - The requested MDC was not met. M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.	Abbreviations: TPU - Total Propagated Uncertainty MDC - Minimum Detectable Concentration
--	---

Data Package ID: RE1210310-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC

Work Order Number: 1210310

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID:	
Lab ID:	RE121101-1LCSD

Sample Matrix: FILTER
Prep SOP: PAI 783 Rev 10
Date Collected: 01-Nov-12
Date Prepared: 01-Nov-12
Date Analyzed: 08-Nov-12

Prep Batch: RE121101-1
QCBatchID: RE121101-1-1
Run ID: RE121101-1A
Count Time: 15 minutes

Final Aliquot: 0.900 sample
Prep Basis: As Received
Moisture(%): NA
Result Units: pCi/sample
File Name: Manual Entry

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	51.8 +/- 9.6	0.3	P	50.4 +/- 9.3	0.3	P	0.108	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: RE1210310-1

Date Printed: Friday, November 09, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 1 of 1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-077	Sample Matrix: FILTER	Prep Batch: RE121101-1	Final Aliquot: 0.900 sample
Lab ID: 1210310-1	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121101-1-1	Prep Basis: As Received
	Date Collected: 15-Oct-12	Run ID: RE121101-1A	Moisture(%): NA
	Date Prepared: 01-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 08-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.42 +/- 0.25	0.26	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210310-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-078	Sample Matrix: FILTER	Prep Batch: RE121101-1	Final Aliquot: 0.900 sample
Lab ID: 1210310-2	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121101-1-1	Prep Basis: As Received
	Date Collected: 15-Oct-12	Run ID: RE121101-1A	Moisture(%): NA
	Date Prepared: 01-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 08-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.19 +/- 0.18	0.23	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210310-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-079	Sample Matrix: FILTER	Prep Batch: RE121101-1	Final Aliquot: 0.900 sample
Lab ID: 1210310-3	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121101-1-1	Prep Basis: As Received
	Date Collected: 15-Oct-12	Run ID: RE121101-1A	Moisture(%): NA
	Date Prepared: 01-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 08-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.41 +/- 0.24	0.21	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210310-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-080	Sample Matrix: FILTER	Prep Batch: RE121101-1	Final Aliquot: 0.900 sample
Lab ID: 1210310-4	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121101-1-1	Prep Basis: As Received
	Date Collected: 16-Oct-12	Run ID: RE121101-1A	Moisture(%): NA
	Date Prepared: 01-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 08-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.56 +/- 0.28	0.08	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210310-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-081	Sample Matrix: FILTER	Prep Batch: RE121101-1	Final Aliquot: 0.900 sample
Lab ID: 1210310-5	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121101-1-1	Prep Basis: As Received
	Date Collected: 16-Oct-12	Run ID: RE121101-1A	Moisture(%): NA
	Date Prepared: 01-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 08-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.52 +/- 0.32	0.36	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210310-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-082	Sample Matrix: FILTER	Prep Batch: RE121101-1	Final Aliquot: 0.900 sample
Lab ID: 1210310-6	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121101-1-1	Prep Basis: As Received
	Date Collected: 17-Oct-12	Run ID: RE121101-1A	Moisture(%): NA
	Date Prepared: 01-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 08-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.56 +/- 0.29	0.22	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210310-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-083	Sample Matrix: FILTER	Prep Batch: RE121101-1	Final Aliquot: 0.900 sample
Lab ID: 1210310-7	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121101-1-1	Prep Basis: As Received
	Date Collected: 17-Oct-12	Run ID: RE121101-1A	Moisture(%): NA
	Date Prepared: 01-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 08-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.35 +/- 0.27	0.35	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: RE1210310-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-084	Sample Matrix: FILTER	Prep Batch: RE121101-1	Final Aliquot: 0.900 sample
Lab ID: 1210310-8	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121101-1-1	Prep Basis: As Received
	Date Collected: 17-Oct-12	Run ID: RE121101-1A	Moisture(%): NA
	Date Prepared: 01-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 08-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.52 +/- 0.36	0.46	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210310-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-085	Sample Matrix: FILTER	Prep Batch: RE121101-1	Final Aliquot: 0.900 sample
Lab ID: 1210310-9	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121101-1-1	Prep Basis: As Received
	Date Collected: 18-Oct-12	Run ID: RE121101-1A	Moisture(%): NA
	Date Prepared: 01-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 08-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.45 +/- 0.28	0.32	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210310-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210310
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-086	Sample Matrix: FILTER	Prep Batch: RE121101-1	Final Aliquot: 0.900 sample
Lab ID: 1210310-10	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121101-1-1	Prep Basis: As Received
	Date Collected: 18-Oct-12	Run ID: RE121101-1A	Moisture(%): NA
	Date Prepared: 01-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 08-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.64 +/- 0.33	0.31	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1210310-1

QUALITY ASSURANCE SUMMARY SHEET

ALS W.O. # / BATCH 1210310
 TEST prep, Ra-226, Metals
 METHOD prep
 SOP/REV (PREP)
 SOP/REV (ANAL)

Briefly document any QA or other problems or deviations associated with the analysis of samples. Problems could result from: log-in, color, odor, dilution, consistency, scheduling, equipment, or instrumentation, or may include documentation of minor deviations necessary due to unique DQO's or sample characteristics.

- B2 11/1/12
1. Samples in work order 1210310 consisted of large glass fiber filters to be analyzed for Ra226 and Metals. The samples were placed into plastic cups and digested by adding 50 mL nitric acid, and 50 mL hydrochloric acid. At this time a MB was created. After drying the digestions on the hotblock, 10 ml nitric acid and ~90 ml DI water were added. The samples were filtered through fluted qualitative filter paper and brought to a volume of 100 mL with DI water. Samples were then split for appropriate tests.

- B2 11/1/12
2. The digestate is a common solution for multiple analyses. Tracing and spiking was performed after the appropriate aliquot was taken from the common digestate for the analysis of Ra-226 and Metals. This reduces the potential for interferences caused by the different matrices used in the tracing and spiking solutions.

3. Per project manager, aliquots were taken as listed below.
- | | |
|--------|-------------------------------|
| Metals | 10 ml or .1 sample equivalent |
| Ra226 | 90 ml or .9 sample equivalent |

The following equation was used to calculate the filter equivalent:

$$\text{Sample Equivalent (x)} = \frac{(\text{Digestate volume taken for analysis})}{(\text{Total volume of digestate})}$$

B2 11/1/12

TECHNICIAN/ANALYST [Signature]

DATE 11/1/12

DEPARTMENT MANAGER [Signature]

DATE 11/1/12



Metals Case Narrative

SENES Consultants Limited

Church Rock Phase II – SENES 350180-203 (200)

Work Order Number: 1211079

1. This report consists of 22 filter samples.
2. The samples were received intact at ambient temperature by ALS on 11/06/12.
3. The samples were prepared as described on the Quality Assurance Summary Sheet included with this report.
4. The samples were analyzed based on SW-846, 3rd Edition procedures.

Analysis by ICP-MS followed method 6020A and the current revision of SOP 806.

5. All standards and solutions are NIST traceable and were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold times.

All in house quality control procedures were followed, as described below.

7. General quality control procedures.
 - A preparation (method) blank, laboratory control sample, and laboratory control sample duplicate were digested and analyzed with the samples in each digestion batch.
 - The preparation (method) blank associated with each digestion batch was below the reporting limit for the requested analyte.
 - All laboratory control sample criteria were met.
 - All initial and continuing calibration blanks were below the reporting limit for the requested analyte.
 - All initial and continuing calibration verifications were within the acceptance criteria for the requested analyte.



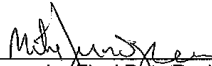
- The interference check samples associated with Method 6020A were analyzed.
8. Matrix specific quality control procedures.
- Samples 1211079-20 and -22 were designated as the quality control samples for this analysis. Due to limited sample volume, matrix QC consisted of a post spike and serial dilution.
- Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.
- A post spike was analyzed with each batch. All acceptance criteria for accuracy were met.
 - A serial dilution was analyzed with each ICP batch.
9. The samples were analyzed at a dilution in order to protect the ICP-MS from the high metal content.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Jill Latelle
Inorganics Primary Data Reviewer

11-26-12
Date



Inorganics Final Data Reviewer

11-26-12
Date



Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- Result qualifier -- If the analyte was analyzed for but not detected a "U" is entered.
- QC qualifier -- Specified entries and their meanings are as follows:
 - E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 - M - Duplicate injection precision was not met.
 - N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 - Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 - * - Duplicate analysis (relative percent difference) not within control limits.
 - S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1211079

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203 (200)

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RWPR-AS-087	1211079-1		FILTER	24-Oct-12	12:50
RWPR-AS-088	1211079-2		FILTER	24-Oct-12	17:10
RWPR-AS-089	1211079-3		FILTER	24-Oct-12	14:25
RWPR-AS-090	1211079-4		FILTER	25-Oct-12	16:38
RWPR-AS-091	1211079-5		FILTER	26-Oct-12	17:05
RWPR-AS-092	1211079-6		FILTER	26-Oct-12	17:13
RWPR-AS-093	1211079-7		FILTER	26-Oct-12	17:22
RWPR-AS-094	1211079-8		FILTER	27-Oct-12	17:02
RWPR-AS-095	1211079-9		FILTER	27-Oct-12	17:14
RWPR-AS-096	1211079-10		FILTER	27-Oct-12	17:23
RWPR-AS-097	1211079-11		FILTER	29-Oct-12	12:30
RWPR-AS-098	1211079-12		FILTER	29-Oct-12	17:05
RWPR-AS-099	1211079-13		FILTER	29-Oct-12	16:51
RWPR-AS-100	1211079-14		FILTER	30-Oct-12	16:55
RWPR-AS-101	1211079-15		FILTER	30-Oct-12	17:10
RWPR-AS-102	1211079-16		FILTER	30-Oct-12	17:20
RWPR-AS-103	1211079-17		FILTER	31-Oct-12	15:55
RWPR-AS-104	1211079-18		FILTER	31-Oct-12	16:10
RWPR-AS-105	1211079-19		FILTER	31-Oct-12	16:24
RWPR-AS-106	1211079-20		FILTER	01-Nov-12	16:47
RWPR-AS-107	1211079-21		FILTER	01-Nov-12	17:05
RWPR-AS-108	1211079-22		FILTER	01-Nov-12	17:15



ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
Tel: (970) 443-1611 Fax: (970) 490-1622

Chain-of-Custody

Form 20218

PROJECT NAME Church Rock Phase II		SAMPLER Liles		DATE 02-Nov-12		PAGE 1 of 3			
PROJECT No. SERIES 350180-201 (400)		SITE ID Churchrock		TURNAROUND 30 day		DISPOSAL By Lab or Return to Client			
		EDD FORMAT							
		PURCHASE ORDER Account Number 816126858							
COMPANY NAME SENES		BILL TO COMPANY SENES Consultants Limited							
SEND REPORT TO Darrell Liles		INVOICE ATTN TO Andrea Pegg							
ADDRESS 8310 S. Valley Hwy., Suite 3014		ADDRESS 121 Granton Dr., Unit #12							
CITY / STATE / ZIP Englewood, CO 80112		CITY / STATE / ZIP Richmond Hill, ON L4B 3N4							
PHONE (970) 420-5669		PHONE (905) 764-9380							
FAX		FAX (905) 764-9386							
E-MAIL dliles@senesusa.com		E-MAIL apegg@senes.ca							
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Sample s	QC	Run Time (min)	Total Flow (liters)	Comments
①	RWPR-AS-087	F	24/10/2012	1250	1	II	280	11890	*
②	RWPR-AS-088	F	24/10/2012	1710	1	II	554	22160	*
③	RWPR-AS-089	F	24/10/2012	1425	1	II	380	15200	*
④	RWPR-AS-090	F	25/10/2012	1638	1	II	575	23000	
⑤	RWPR-AS-091	F	26/10/2012	1705	1	II	470	19270	
⑥	RWPR-AS-092	F	26/10/2012	1713	1	II	452	18080	
⑦	RWPR-AS-093	F	26/10/2012	1722	1	II	438	17520	
⑧	RWPR-AS-094	F	27/10/2012	1702	1	II	543	21720	
⑨	RWPR-AS-095	F	27/10/2012	1714	1	II	542	21680	
⑩	RWPR-AS-096	F	27/10/2012	1723	1	II	523	20920	

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:
Samples taken on 10/24/2012 were blown over by wind; 087 and 089 were both found face down in dirt.

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Ron Steyer	02/11/12	1755
RELINQUISHED BY		Lauren Schmitz	11/16/12	1645
RELINQUISHED BY				
RELINQUISHED BY				

ALS Laboratory Group

228 Commerce Drive, Fort Collins, Colorado 80524
 TF: (800) 443-1511 PH: (970) 480-1511 FX: (970) 480-1522

Chain-of-Custody

Form 202a

PROJECT NAME Church Rock Phase II		SAMPLER Lites		DATE 02-Nov-12		PAGE 2 of 3		WORKORDER # 1211079	
PROJECT No. SENES 350180-201 (400)		SITE ID Churchrock		TURNAROUND 30 day		DISPOSAL By Lab or Return to Client			
COMPANY NAME SENES		EDD FORMAT PURCHASE ORDER							
SEND REPORT TO Darrell Liles		PURCHASE ORDER Account Number 815128558							
ADDRESS 8310 S. Valley Hwy., Suite 3014		BILL TO COMPANY SENES Consultants Limited							
CITY / STATE / ZIP Englewood, CO 80112		INVOICE ATTN TO Andrea Pegg							
PHONE (970) 422-8669		ADDRESS 121 Granton Dr., Unit #12							
FAX (905) 784-9380		CITY / STATE / ZIP Richmond Hill, ON L4B 3M4							
E-MAIL dliles@senesusa.com		PHONE (905) 784-9380							
		FAX (905) 784-9386							
		E-MAIL adegui@senesusa.com							

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Sample s	Pres.	QC	Run Time (min)	Total Flow (ft ³)	Comments
11	RWPR-AS-097	F	29/10/2012	1230	1	II	II	289	11560	A
12	RWPR-AS-098	F	29/10/2012	1705	1	II	II	548	21920	
13	RWPR-AS-099	F	29/10/2012	1651	1	II	II	513	23085	
14	RWPR-AS-100	F	30/10/2012	1655	1	II	II	505	20200	
15	RWPR-AS-101	F	30/10/2012	1710	1	II	II	505	20200	
16	RWPR-AS-102	F	30/10/2012	1720	1	II	II	499	19960	
17	RWPR-AS-103	F	31/10/2012	1555	1	II	II	498	19920	
18	RWPR-AS-104	F	31/10/2012	1610	1	II	II	498	19920	
19	RWPR-AS-105	F	31/10/2012	1624	1	II	II	502	20080	
20	RWPR-AS-106	F	01/10/2012	1647	1	II	II	527	21080	

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	<i>[Signature]</i>	<i>Ron Sten</i>	02 Nov 12	1755
RELINQUISHED BY		<i>Lauren Camitz</i>	11/16/12	1615
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

QC PACKAGE (check below)	
X	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
	LEVEL IV (Std QC + forms + raw data)

Comments:
 A: not started at noon

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NHCl 5-NH4BrCl 7-Other 8-4 degrees C 9-5025



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client:

Senes

Workorder No:

1211079

Project Manager:

IRK

Initials:

IAS

Date:

11/6/12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	<input checked="" type="radio"/> NO *
7. Were airbills / shipping documents present and/or removable?	<input checked="" type="radio"/> DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<input checked="" type="radio"/> RAD ONLY	YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>ANUB</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

*6 1211079-20 (RWPR-AS-106) COC date = 10/1/12 Label = 11/1/12
 ↓ -21 (↓ -107) ↓ = 10/29/12 ↓ = 11/1/12
 ↓ -22 (↓ -108) ↓ = 10/29/12 ↓ = 11/1/12

If applicable, was the client contacted? ☒ YES ☒ NO ☒ NA

Contact:

Liles

Date/Time:

11-6-12

Project Manager Signature / Date:

[Signature] 11-6-12



WEIGHT	WEIGHT	DIMENSIONAL WEIGHT IN POUNDS	LARGE PACKAGE	SHIPPER RELEASE
	38	100 lb	<input type="checkbox"/>	<input type="checkbox"/>

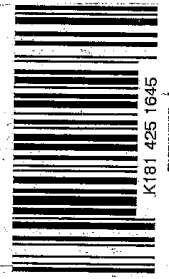
12/10/79
7 100 lb

SHIPMENT FROM	SHIPMENT TO
UPS ACCOUNT NO. 875-564	UPS ACCOUNT NO. 875-564
REFERENCE NUMBER 350180-203(200)	REFERENCE NUMBER 350180-203(200)
TELEPHONE 38 717-3257	TELEPHONE 38 717-3257

Darrell Liles
SEVES
8310 S Valley Hwy Suite 3014
Englewood CO 80112

DELIVERY TO
Jeff Kujawa
AKS Laboratory Group
225 Commerce Drive
Fort Collins Colorado 80524

UPS Ground S.D.P.



TRACKING NUMBER
K181 425 1645

021295 1/10 RRD United Parcel Service, Louisville, KY

Total Recoverable URANIUM

Method SW6020 Revision A

Sample Results

Lab Name: ALS Environmental -- FC
Client Name: SENES Consultants Limited
Client Project ID: Church Rock Phase II SENES 350180-203 (200)
Work Order Number: 1211079 Final Volume: 100 ml
Reporting Basis: As Received Matrix: FILTER
Prep Method: SW3050B Result Units: UG/sample
Analyst: Ross Miller

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
RWPR-AS-087	1211079-1	10/24/2012	11/09/2012	11/09/2012	N/A	50	2.3	0.05		1 sample
RWPR-AS-088	1211079-2	10/24/2012	11/09/2012	11/09/2012	N/A	50	0.82	0.05		1 sample
RWPR-AS-089	1211079-3	10/24/2012	11/09/2012	11/09/2012	N/A	50	2.9	0.05		1 sample
RWPR-AS-090	1211079-4	10/25/2012	11/09/2012	11/09/2012	N/A	50	0.84	0.05		1 sample
RWPR-AS-091	1211079-5	10/26/2012	11/09/2012	11/09/2012	N/A	50	0.9	0.05		1 sample
RWPR-AS-092	1211079-6	10/26/2012	11/09/2012	11/09/2012	N/A	50	0.54	0.05		1 sample
RWPR-AS-093	1211079-7	10/26/2012	11/09/2012	11/09/2012	N/A	50	0.44	0.05		1 sample
RWPR-AS-094	1211079-8	10/27/2012	11/09/2012	11/09/2012	N/A	50	1.2	0.05		1 sample
RWPR-AS-095	1211079-9	10/27/2012	11/09/2012	11/09/2012	N/A	50	0.56	0.05		1 sample
RWPR-AS-096	1211079-10	10/27/2012	11/09/2012	11/09/2012	N/A	50	1.9	0.05		1 sample
RWPR-AS-097	1211079-11	10/29/2012	11/09/2012	11/09/2012	N/A	50	1.1	0.05		1 sample
RWPR-AS-098	1211079-12	10/29/2012	11/09/2012	11/09/2012	N/A	50	0.48	0.05		1 sample
RWPR-AS-099	1211079-13	10/29/2012	11/09/2012	11/09/2012	N/A	50	0.98	0.05		1 sample
RWPR-AS-100	1211079-14	10/30/2012	11/09/2012	11/09/2012	N/A	50	1.1	0.05		1 sample
RWPR-AS-101	1211079-15	10/30/2012	11/09/2012	11/09/2012	N/A	50	0.7	0.05		1 sample
RWPR-AS-102	1211079-16	10/30/2012	11/09/2012	11/09/2012	N/A	50	0.74	0.05		1 sample
RWPR-AS-103	1211079-17	10/31/2012	11/09/2012	11/09/2012	N/A	50	1.1	0.05		1 sample
RWPR-AS-104	1211079-18	10/31/2012	11/09/2012	11/09/2012	N/A	50	0.58	0.05		1 sample

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *im1211079-1*

Date Printed: Monday, November 26, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 1 of 2

Total Recoverable URANIUM

Method SW6020 Revision A

Sample Results

Lab Name: ALS Environmental -- FC
Client Name: SENES Consultants Limited
Client Project ID: Church Rock Phase II SENES 350180-203 (200)
Work Order Number: 1211079 Final Volume: 100 ml
Reporting Basis: As Received Matrix: FILTER
Prep Method: SW3050B Result Units: UG/sample
Analyst: Ross Miller

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
RWPR-AS-105	1211079-19	10/31/2012	11/09/2012	11/09/2012	N/A	50	0.54	0.05		1 sample
RWPR-AS-106	1211079-20	11/01/2012	11/09/2012	11/09/2012	N/A	50	1.4	0.05		1 sample
RWPR-AS-107	1211079-21	11/01/2012	11/09/2012	11/09/2012	N/A	50	0.76	0.05		1 sample
RWPR-AS-108	1211079-22	11/01/2012	11/09/2012	11/09/2012	N/A	50	0.6	0.05		1 sample

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *im1211079-1*

Date Printed: Monday, November 26, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 2 of 2

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1211079

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: IP121109-21MB

Sample Matrix: FILTER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09-Nov-12

Date Analyzed: 09-Nov-12

Prep Method: SW3050 Rev B

Prep Batch: IP121109-21

QCBatchID: IP121109-21-1

Run ID: IM121109-10A1

Cleanup: NONE

Basis: N/A

File Name: 001SMPL.

Sample Aliquot: 1 sample

Final Volume: 100 ml

Result Units: UG/sample

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-61-1	URANIUM	50	0.05	0.05	U	

Data Package ID: *im1211079-1*

Date Printed: Monday, November 26, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 1 of 2

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1211079

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: IP121109-22MB

Sample Matrix: FILTER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09-Nov-12

Date Analyzed: 09-Nov-12

Prep Method: SW3050 Rev B

Prep Batch: IP121109-21

QCBatchID: IP121109-21-2

Run ID: IM121109-10A1

Cleanup: NONE

Basis: N/A

File Name: 030SMPL.

Sample Aliquot: 1 sample

Final Volume: 100 ml

Result Units: UG/sample

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-61-1	URANIUM	50	0.05	0.05	U	

Data Package ID: *im1211079-1*

Date Printed: Monday, November 26, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 2 of 2

ICPMS Metals

Method SW6020A

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1211079

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: IP121109-21LCS	Sample Matrix: FILTER % Moisture: N/A Date Collected: N/A Date Extracted: 11/09/2012 Date Analyzed: 11/09/2012 Prep Method: SW3050B	Prep Batch: IP121109-21 QCBatchID: IP121109-21-1 Run ID: IM121109-10A1 Cleanup: NONE Basis: N/A File Name: 002SMPL.	Sample Aliquot: 1 sample Final Volume: 100 ml Result Units: UG/sample Clean DF: 1
------------------------	--	--	--

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-61-1	URANIUM	10	9.3	0.05		93	80 - 120%

Lab ID: IP121109-21LCSD	Sample Matrix: FILTER % Moisture: N/A Date Collected: N/A Date Extracted: 11/09/2012 Date Analyzed: 11/09/2012 Prep Method: SW3050B	Prep Batch: IP121109-21 QCBatchID: IP121109-21-1 Run ID: IM121109-10A1 Cleanup: NONE Basis: N/A File Name: 003SMPL.	Sample Aliquot: 1 sample Final Volume: 100 ml Result Units: UG/sample Clean DF: 1
-------------------------	--	--	--

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
7440-61-1	URANIUM	10	9.3	0.05		93	20	0

Data Package ID: *im1211079-1*

Date Printed: Monday, November 26, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 1 of 2

ICPMS Metals

Method SW6020A

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1211079

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: IP121109-22LCS	Sample Matrix: FILTER % Moisture: N/A Date Collected: N/A Date Extracted: 11/09/2012 Date Analyzed: 11/09/2012 Prep Method: SW3050B	Prep Batch: IP121109-21 QCBatchID: IP121109-21-2 Run ID: IM121109-10A1 Cleanup: NONE Basis: N/A File Name: 031SMPL.	Sample Aliquot: 1 sample Final Volume: 100 ml Result Units: UG/sample Clean DF: 1
------------------------	--	--	--

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-61-1	URANIUM	10	9.38	0.05		94	80 - 120%

Lab ID: IP121109-22LCSD	Sample Matrix: FILTER % Moisture: N/A Date Collected: N/A Date Extracted: 11/09/2012 Date Analyzed: 11/09/2012 Prep Method: SW3050B	Prep Batch: IP121109-21 QCBatchID: IP121109-21-2 Run ID: IM121109-10A1 Cleanup: NONE Basis: N/A File Name: 032SMPL.	Sample Aliquot: 1 sample Final Volume: 100 ml Result Units: UG/sample Clean DF: 1
-------------------------	--	--	--

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
7440-61-1	URANIUM	10	9.52	0.05		95	20	1

Data Package ID: *im1211079-1*

Date Printed: Monday, November 26, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 2 of 2

ICPMS Metals

Method SW6020

Analytical Spike Sample Recovery

Lab Name: ALS Environmental -- FC

Work Order Number: 1211079

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-106

LabID: 1211079-20A

Run ID: IM121109-10A1

Date Analyzed: 09-Nov-12

Result Units: ug/l

Target Analyte	Sample Result	Samp Qual	PS Result	PS Qual	Spike Added	PS % Rec.	Control Limits
URANIUM	0.289		2.20		2	96	75 - 125%

Data Package ID: *im1211079-1*

Date Printed: Monday, November 26, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 1 of 2

ICPMS Metals

Method SW6020

Analytical Spike Sample Recovery

Lab Name: ALS Environmental -- FC

Work Order Number: 1211079

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-108

LabID: 1211079-22A

Run ID: IM121109-10A1

Date Analyzed: 09-Nov-12

Result Units: ug/l

Target Analyte	Sample Result	Samp Qual	PS Result	PS Qual	Spike Added	PS % Rec.	Control Limits
URANIUM	0.121		2.08		2	98	75 - 125%

Data Package ID: *im1211079-1*

Date Printed: Monday, November 26, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 2 of 2

QUALITY ASSURANCE SUMMARY SHEET

ALS W.O. # / BATCH 1211079
 TEST Ra-226, Metals
 METHOD prep
 SOP/REV (PREP) _____
 SOP/REV (ANAL) _____

Briefly document any QA or other problems or deviations associated with the analysis of samples. Problems could result from: log-in, color, odor, dilution, consistency, scheduling, equipment, or instrumentation, or may include documentation of minor deviations necessary due to unique DQO's or sample characteristics.

1. Samples in work order 1211079 consisted of large glass fiber filters to be analyzed for Ra226 and Metals. The samples were placed into plastic cups and digested by adding 50 mL nitric acid, and 50 mL hydrochloric acid. At this time a MB was created. After drying the digestions on the hotblock, 10 ml nitric acid and ~90 ml DI water were added. The samples were filtered through fluted qualitative filter paper and brought to a volume of 100 mL with DI water. Samples were then split for appropriate tests.
2. The digestate is a common solution for multiple analyses. Tracing and spiking was performed after the appropriate aliquot was taken from the common digestate for the analysis of Ra-226 and Metals. This reduces the potential for interferences caused by the different matrices used in the tracing and spiking solutions.
3. Per project manager, aliquots were taken as listed below.

Metals	10 ml or .1 sample equivalent
Ra226	90 ml or .9 sample equivalent

The following equation was used to calculate the filter equivalent:

$$\text{Sample Equivalent (x)} = \frac{(\text{Digestate volume taken for analysis})}{(\text{Total volume of digestate})}$$

TECHNICIAN/ANALYST

[Signature]

DATE

11/8/12

DEPARTMENT MANAGER

[Signature]

DATE

11/8/12

FORM 302r6.doc (4/22/04)

Sample Condition Form (Solids)				
Analysis: <u>BU</u>				
Analysis Date: <u>11/8/12</u>		Method: <u>Ra-226 / Metals prep</u>		
Sample Condition (Visual Appearance of Analysis Aliquot at Time of Prep)				
Work Order	Sample ID	Dry/Wet/Moist	Texture	Remarks
1211079	1	As received	Filter	Large Fiberglass Filters
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	17			
	18			
	19			
	20			

[illegible]



Radium-226

Case Narrative

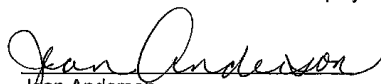
SENES Consultants Limited

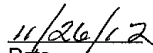
Church Rock Phase II – SENES 350180-203 (200)

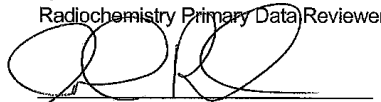
Work Order Number: 1211079

1. This report consists of the analytical results for 22 composite filter samples received by ALS on 11/06/2012.
2. These samples were prepared and analyzed according to the current revisions of SOP 783, with procedure modifications outlined on QASS #422656. The analyses were completed on 11/16/2012.
3. The analysis results for these samples are reported on an 'As Received' basis in units of pCi/sample.
4. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate for both batches.
5. No anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.


Jean Anderson
Radiochemistry Primary Data Reviewer


Date


Radiochemistry Final Data Reviewer


Date

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1211079

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203 (200)

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RWPR-AS-087	1211079-1		FILTER	24-Oct-12	12:50
RWPR-AS-088	1211079-2		FILTER	24-Oct-12	17:10
RWPR-AS-089	1211079-3		FILTER	24-Oct-12	14:25
RWPR-AS-090	1211079-4		FILTER	25-Oct-12	16:38
RWPR-AS-091	1211079-5		FILTER	26-Oct-12	17:05
RWPR-AS-092	1211079-6		FILTER	26-Oct-12	17:13
RWPR-AS-093	1211079-7		FILTER	26-Oct-12	17:22
RWPR-AS-094	1211079-8		FILTER	27-Oct-12	17:02
RWPR-AS-095	1211079-9		FILTER	27-Oct-12	17:14
RWPR-AS-096	1211079-10		FILTER	27-Oct-12	17:23
RWPR-AS-097	1211079-11		FILTER	29-Oct-12	12:30
RWPR-AS-098	1211079-12		FILTER	29-Oct-12	17:05
RWPR-AS-099	1211079-13		FILTER	29-Oct-12	16:51
RWPR-AS-100	1211079-14		FILTER	30-Oct-12	16:55
RWPR-AS-101	1211079-15		FILTER	30-Oct-12	17:10
RWPR-AS-102	1211079-16		FILTER	30-Oct-12	17:20
RWPR-AS-103	1211079-17		FILTER	31-Oct-12	15:55
RWPR-AS-104	1211079-18		FILTER	31-Oct-12	16:10
RWPR-AS-105	1211079-19		FILTER	31-Oct-12	16:24
RWPR-AS-106	1211079-20		FILTER	01-Nov-12	16:47
RWPR-AS-107	1211079-21		FILTER	01-Nov-12	17:05
RWPR-AS-108	1211079-22		FILTER	01-Nov-12	17:15



ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
Tel: (970) 443-1611 Fax: (970) 450-1622

Chain-of-Custody

Form 20218

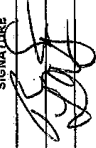

PROJECT NAME Church Rock Phase II		SAMPLER Liles		DATE 02-Nov-12		PAGE 1 of 3			
PROJECT No. SERIES 350180-201 (400)		SITE ID Churchrock		TURNAROUND 30 day		DISPOSAL By Lab or Return to Client			
		EDD FORMAT							
		PURCHASE ORDER Account Number 816126858							
COMPANY NAME SENES		BILL TO COMPANY SENES Consultants Limited							
SEND REPORT TO Darrell Liles		INVOICE ATTN TO Andrea Pegg							
ADDRESS 8310 S. Valley Hwy., Suite 3014		ADDRESS 121 Granton Dr., Unit #12							
CITY / STATE / ZIP Englewood, CO 80112		CITY / STATE / ZIP Richmond Hill, ON L4B 3N4							
PHONE (970) 420-5669		PHONE (905) 764-9380							
FAX		FAX (905) 764-9386							
E-MAIL dliles@senesusa.com		E-MAIL apegg@senes.ca							
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Sample s	QC	Run Time (min)	Total Flow (liters)	Comments
①	RWPR-AS-087	F	24/10/2012	1250	1	II	280	11890	*
②	RWPR-AS-088	F	24/10/2012	1710	1	II	554	22160	*
③	RWPR-AS-089	F	24/10/2012	1425	1	II	380	15200	*
④	RWPR-AS-090	F	25/10/2012	1638	1	II	575	23000	
⑤	RWPR-AS-091	F	26/10/2012	1705	1	II	470	19270	
⑥	RWPR-AS-092	F	26/10/2012	1713	1	II	452	18080	
⑦	RWPR-AS-093	F	26/10/2012	1722	1	II	438	17520	
⑧	RWPR-AS-094	F	27/10/2012	1702	1	II	543	21720	
⑨	RWPR-AS-095	F	27/10/2012	1714	1	II	542	21680	
⑩	RWPR-AS-096	F	27/10/2012	1723	1	II	523	20920	

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:
Samples taken on 10/24/2012 were blown over by wind; 087 and 089 were both found face down in dirt.

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY		Ron Steyer	02/11/12	1755
RELINQUISHED BY		Laurenschmitz	11/16/12	1645
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

ALS Laboratory Group

228 Commerce Drive, Fort Collins, Colorado 80524
 TF: (800) 443-1511 PH: (970) 480-1511 FX: (970) 480-1522

Chain-of-Custody

PROJECT NAME Church Rock Phase II		SAMPLER Lites		DATE 02-Nov-12		PAGE 2 of 3		WORKORDER # 1211079	
PROJECT No. SENES 350180-201 (400)		SITE ID Churchrock		TURNAROUND 30 day		DISPOSAL By Lab or Return to Client			
COMPANY NAME SENES		BILL TO COMPANY SENES Consultants Limited							
SEND REPORT TO Darrell Liles		INVOICE ATTN TO Andrea Pegg							
ADDRESS 8310 S. Valley Hwy., Suite 3014		ADDRESS 121 Granton Dr., Unit #12							
CITY / STATE / ZIP Englewood, CO 80112		CITY / STATE / ZIP Richmond Hill, ON L4B 3M4							
PHONE (970) 422-8669		PHONE (905) 784-8330							
FAX 		FAX (905) 784-9386							
E-MAIL dliles@senesusa.com		E-MAIL adeg@senesusa.com							

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Sample s	Pres.	QC	Run Time (min)	Total Flow (lt*3)	Comments
11	RWPR-AS-097	F	29/10/2012	1230	1	II	II	289	11560	A
12	RWPR-AS-098	F	29/10/2012	1705	1	II	II	548	21920	
13	RWPR-AS-099	F	29/10/2012	1651	1	II	II	513	23085	
14	RWPR-AS-100	F	30/10/2012	1655	1	II	II	505	20200	
15	RWPR-AS-101	F	30/10/2012	1710	1	II	II	505	20200	
16	RWPR-AS-102	F	30/10/2012	1720	1	II	II	499	19960	
17	RWPR-AS-103	F	31/10/2012	1555	1	II	II	498	19920	
18	RWPR-AS-104	F	31/10/2012	1610	1	II	II	498	19920	
19	RWPR-AS-105	F	31/10/2012	1624	1	II	II	502	20080	
20	RWPR-AS-106	F	01/10/2012	1647	1	II	II	527	21080	

RELINQUISHED BY <i>[Signature]</i>		PRINTED NAME Paul Sten		DATE 02 Nov 12		TIME 1755	
RECEIVED BY <i>[Signature]</i>		PRINTED NAME Lauren Camitz		DATE 11/16/12		TIME 1615	
RELINQUISHED BY							
RECEIVED BY							

QC PACKAGE (check below)	
X	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
	LEVEL IV (Std QC + forms + raw data)

Comments:	
A: not started at noon	

Preservative Key:	1-HCl 2-HNO3 3-H2SO4 4-HNO3 5-HaHPO4 7-Other 8-4 degrees C 9-5025
-------------------	---

Chain-of-Custody

TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

5 of 38



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client:

Senes

Workorder No:

1211079

Project Manager:

IRK

Initials:

LAS

Date:

11/6/12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	<input checked="" type="radio"/> NO *
7. Were airbills / shipping documents present and/or removable?	<input checked="" type="radio"/> DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<input checked="" type="radio"/> RAD ONLY	YES	<input checked="" type="radio"/> NO

Cooler #: 1
Temperature (°C): ANUB
No. of custody seals on cooler: 0
External µR/hr reading: 12
Background µR/hr reading: 11

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria: ☒ YES / ☐ NO / ☐ NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

*6 1211079-20 (RWPR-AS-106) COC date = 10/1/12 Label = 11/1/12
 ↓ -21 (↓ -107) ↓ = 10/29/12 ↓ = 11/1/12
 ↓ -22 (↓ -108) ↓ = 10/29/12 ↓ = 11/1/12

If applicable, was the client contacted? ☒ YES ☐ NO ☐ NA

Contact:

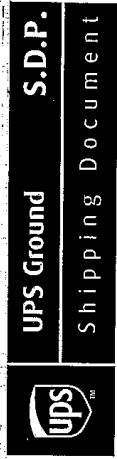
Liles

Date/Time:

11-6-12

Project Manager Signature / Date:

[Signature] 11-6-12



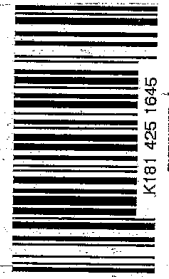
WEIGHT	WEIGHT	DIMENSIONAL WEIGHT IN POUNDS	LARGE PACKAGE	SHIPPER RELEASE
	38	100 lb	<input type="checkbox"/>	<input type="checkbox"/>

12/10/79
7 100 lb

SHIPMENT FROM	SHIPMENT TO
UPS ACCOUNT NO. 875-564	UPS ACCOUNT NO. 875-564
REFERENCE NUMBER 350180-203(200)	REFERENCE NUMBER 350180-203(200)
Darrell Liles	Darrell Liles
SEVES	SEVES
8310 S Valley Hwy Suite 3014	8310 S Valley Hwy Suite 3014
Englewood CO 80112	Englewood CO 80112

DELIVERY TO
Jeff Kujawa
AKS Laboratory Group
225 Commerce Drive
Fort Collins Colorado 80524

UPS Ground S.D.P.



TRACKING NUMBER
K181 425 1645

021295 1/10 RRD United Parcel Service, Louisville, KY

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121109-1MB	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 09-Nov-12 Date Prepared: 09-Nov-12 Date Analyzed: 16-Nov-12	Prep Batch: RE121109-1 QCBatchID: RE121109-1-1 Run ID: RE121109-1A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
----------------------	--	--	--

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.03 +/- 0.15	0.22	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121109-2MB	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 09-Nov-12 Date Prepared: 09-Nov-12 Date Analyzed: 16-Nov-12	Prep Batch: RE121109-2 QCBatchID: RE121109-2-1 Run ID: RE121109-2A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
----------------------	--	--	--

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	-0.03 +/- 0.20	0.41	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121109-1LCS	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 09-Nov-12 Date Prepared: 09-Nov-12 Date Analyzed: 16-Nov-12	Prep Batch: RE121109-1 QCBatchID: RE121109-1-1 Run ID: RE121109-1A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
-----------------------	--	--	--

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	50.9 +/- 9.4	0.4	50.00	102	57 - 126	P

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121109-1LCSD	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 09-Nov-12 Date Prepared: 09-Nov-12 Date Analyzed: 16-Nov-12	Prep Batch: RE121109-1 QCBatchID: RE121109-1-1 Run ID: RE121109-1A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
------------------------	--	--	--

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	49.0 +/- 9.1	0.6	50.00	98.1	57 - 126	P

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121109-2LCS	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 09-Nov-12 Date Prepared: 09-Nov-12 Date Analyzed: 16-Nov-12	Prep Batch: RE121109-2 QCBatchID: RE121109-2-1 Run ID: RE121109-2A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
-----------------------	--	--	--

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	50.5 +/- 9.3	0.3	50.00	101	57 - 126	P

Comments:

Qualifiers/Flags: U - Result is less than the sample specific MDC. LT - Result is less than Requested MDC, greater than sample specific MDC. Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed. Y2 - Chemical Yield outside default limits. L - LCS Recovery below lower control limit. H - LCS Recovery above upper control limit. P - LCS Recovery within control limits. M - The requested MDC was not met. M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.	Abbreviations: TPU - Total Propagated Uncertainty MDC - Minimum Detectable Concentration
--	---

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: RE121109-2LCSD	Sample Matrix: FILTER Prep SOP: PAI 783 Rev 10 Date Collected: 09-Nov-12 Date Prepared: 09-Nov-12 Date Analyzed: 16-Nov-12	Prep Batch: RE121109-2 QCBatchID: RE121109-2-1 Run ID: RE121109-2A Count Time: 15 minutes	Final Aliquot: 0.900 sample Result Units: pCi/sample File Name: Manual Entry
------------------------	--	--	--

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	52.4 +/- 9.7	0.2	50.00	105	57 - 126	P

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID:
Lab ID: RE121109-1LCSD

Sample Matrix: FILTER
Prep SOP: PAI 783 Rev 10
Date Collected: 09-Nov-12
Date Prepared: 09-Nov-12
Date Analyzed: 16-Nov-12
Prep Batch: RE121109-1
QCBatchID: RE121109-1-1
Run ID: RE121109-1A
Count Time: 15 minutes
Final Aliquot: 0.900 sample
Prep Basis: As Received
Moisture(%): NA
Result Units: pCi/sample
File Name: Manual Entry

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	50.9 +/- 9.4	0.4	P	49.0 +/- 9.1	0.6	P	0.144	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: RE1211079-1

Date Printed: Monday, November 26, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 1 of 2

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC

Work Order Number: 1211079

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID:	
Lab ID:	RE121109-2LCSD

Sample Matrix: FILTER
Prep SOP: PAI 783 Rev 10
Date Collected: 09-Nov-12
Date Prepared: 09-Nov-12
Date Analyzed: 16-Nov-12

Prep Batch: RE121109-2
QCBatchID: RE121109-2-1
Run ID: RE121109-2A
Count Time: 15 minutes

Final Aliquot: 0.900 sample
Prep Basis: As Received
Moisture(%): NA
Result Units: pCi/sample
File Name: Manual Entry

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	50.5 +/- 9.3	0.3	P	52.4 +/- 9.7	0.2	P	0.141	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: RE1211079-1

Date Printed: Monday, November 26, 2012

ALS Environmental -- FC

LIMS Version: 6.621

Page 2 of 2

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-087	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-1	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 24-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.61 +/- 0.30	0.21	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-088	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-2	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 24-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.40 +/- 0.28	0.34	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-089	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-3	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 24-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.85 +/- 0.39	0.33	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-090	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-4	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 25-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.45 +/- 0.25	0.21	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-091	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-5	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 26-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.50 +/- 0.29	0.28	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-092	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-6	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 26-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.40 +/- 0.35	0.51	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-093	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-7	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 26-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.50 +/- 0.34	0.44	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-094	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-8	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 27-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.60 +/- 0.30	0.26	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-095	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-9	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 27-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.77 +/- 0.35	0.23	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-096	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-10	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 27-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.77 +/- 0.36	0.32	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-097	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-11	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 29-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.21 +/- 0.30	0.49	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-098	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-12	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 29-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.55 +/- 0.29	0.27	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-099	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-13	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 29-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.41 +/- 0.33	0.45	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-100	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-14	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 30-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.41 +/- 0.35	0.51	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-101	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-15	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 30-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.03 +/- 0.24	0.45	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-102	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-16	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 30-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.33 +/- 0.22	0.22	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-103	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-17	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 31-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.09 +/- 0.33	0.59	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-104	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-18	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 31-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.55 +/- 0.30	0.27	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-105	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-19	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 31-Oct-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.09 +/- 0.22	0.40	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-106	Sample Matrix: FILTER	Prep Batch: RE121109-1	Final Aliquot: 0.900 sample
Lab ID: 1211079-20	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-1-1	Prep Basis: As Received
	Date Collected: 01-Nov-12	Run ID: RE121109-1A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.49 +/- 0.30	0.33	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-107	Sample Matrix: FILTER	Prep Batch: RE121109-2	Final Aliquot: 0.900 sample
Lab ID: 1211079-21	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-2-1	Prep Basis: As Received
	Date Collected: 01-Nov-12	Run ID: RE121109-2A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.36 +/- 0.24	0.22	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

Ra-226 by Radon Emanation - Method 903.1

PAI 783 Rev 10

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211079
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: RWPR-AS-108	Sample Matrix: FILTER	Prep Batch: RE121109-2	Final Aliquot: 0.900 sample
Lab ID: 1211079-22	Prep SOP: PAI 783 Rev 10	QCBatchID: RE121109-2-1	Prep Basis: As Received
	Date Collected: 01-Nov-12	Run ID: RE121109-2A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 15 minutes	Result Units: pCi/sample
	Date Analyzed: 16-Nov-12	Report Basis: As Received	File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.43 +/- 0.25	0.21	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: RE1211079-1

ALS

QUALITY ASSURANCE SUMMARY SHEET

ALS W.O. # / BATCH 1211079
 TEST Ra-226, Metals
 METHOD prep
 SOP/REV (PREP) —
 SOP/REV (ANAL) —

Briefly document any QA or other problems or deviations associated with the analysis of samples. Problems could result from: log-in, color, odor, dilution, consistency, scheduling, equipment, or instrumentation, or may include documentation of minor deviations necessary due to unique DQO's or sample characteristics.

1. Samples in work order 1211079 consisted of large glass fiber filters to be analyzed for Ra226 and Metals. The samples were placed into plastic cups and digested by adding 50 mL nitric acid, and 50 mL hydrochloric acid. At this time a MB was created. After drying the digestions on the hotblock, 10 ml nitric acid and ~90 ml DI water were added. The samples were filtered through fluted qualitative filter paper and brought to a volume of 100 mL with DI water. Samples were then split for appropriate tests.
2. The digestate is a common solution for multiple analyses. Tracing and spiking was performed after the appropriate aliquot was taken from the common digestate for the analysis of Ra-226 and Metals. This reduces the potential for interferences caused by the different matrices used in the tracing and spiking solutions.
3. Per project manager, aliquots were taken as listed below.

Metals	10 ml or .1 sample equivalent
Ra226	90 ml or .9 sample equivalent

The following equation was used to calculate the filter equivalent:

$$\text{Sample Equivalent (x)} = \frac{(\text{Digestate volume taken for analysis})}{(\text{Total volume of digestate})}$$

TECHNICIAN/ANALYST

[Signature]

DATE

11/8/12

DEPARTMENT MANAGER

[Signature]

DATE

11/8/12

FORM 302r6.doc (4/22/04)

422656

Soil Sample (Survey Unit) Raw Data



Gamma Spectroscopy Case Narrative

SENES Consultants Limited Church Rock Phase II – SENES 350180-203


Work Order Number: 1211066

1. The following report consists of analytical results for 19 soil samples received by ALS on 11/06/2012.
2. These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans on 11/09/2012 and stored for at least 21 days to allow ^{222}Rn to approach secular equilibrium with its parent, ^{226}Ra . The degree of in-growth achieved prior to analysis on 11/30/2012 is at least 97.8%. Conservatively assuming a radon emanation efficiency of approximately 50%, the effective radon progeny in-growth for these samples would be greater than 98.9%.
3. The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713. The analyses were completed on 11/30/2012.
4. The results for these samples are reported on a "Dry Weight" basis in units of pCi/gram.
5. Sample volumes were insufficient to allow preparation of duplicates. A duplicate analysis of samples 1211066-18 and -19 was performed in lieu of prepared duplicates.
6. ALS has observed a reproducible low bias in ^{226}Ra results (about -30% for the geometry in question) when using a mixed gamma source for the calibration of HPGe detectors for solid samples. This bias is eliminated by calibration using a NIST traceable ^{226}Ra source in the same geometry and configuration as the samples.
7. The library used for calibration and analysis employs multiple peaks for the ^{226}Ra progeny, ^{214}Pb (352 and 295 keV) and ^{214}Bi (609 and 1120 keV). Using these peaks avoids the use of the problematic ^{226}Ra photo-peak at 186 keV, which suffers from poorly resolvable interference from ^{235}U at the same energy. Final activity results for ^{226}Ra are calculated, using the uncertainty-weighted mean of the activities for the four photo-peaks, by the Seeker gamma spectroscopy software assuming secular equilibrium.

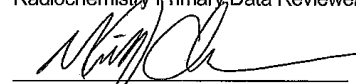


8. There are cases where the sample density is less than the associated calibration standard density. Cases that exceed the limit of $\pm 15\%$ of the density of the calibration standard are flagged with a 'G', denoting a significant density difference between the sample and calibration standard. Consequently, the results may be biased high for the flagged results in this work order. If requested, ALS can perform a transmission spike in order to estimate a magnitude of this bias. The results are reported without further qualification.
9. No further problems were encountered with either the client samples or the associated quality control samples. All remaining quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.


Linda Arend
Radiochemistry Primary Data Reviewer

12-5-12
Date


Radiochemistry Final Data Reviewer

12-05-12
Date

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1211066

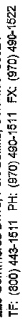
Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RWU3-008	1211066-1		SOIL	02-Nov-12	13:30
RWU3-102	1211066-2		SOIL	02-Nov-12	13:35
RWU3-011	1211066-3		SOIL	02-Nov-12	13:47
RWU2-010	1211066-4		SOIL	02-Nov-12	14:15
RWU2-012	1211066-5		SOIL	02-Nov-12	14:32
RWU2-009	1211066-6		SOIL	02-Nov-12	15:00
RWU3-006	1211066-7		SOIL	25-Oct-12	15:32
RWU3-001	1211066-8		SOIL	30-Oct-12	11:13
RWU3-003	1211066-9		SOIL	30-Oct-12	11:47
RWU2-013	1211066-10		SOIL	31-Oct-12	14:25
RWU2-011	1211066-11		SOIL	31-Oct-12	15:01
RWU2-012	1211066-12		SOIL	31-Oct-12	15:15
RWU2-010	1211066-13		SOIL	31-Oct-12	16:00
RWU2-007	1211066-14		SOIL	01-Nov-12	10:13
RWU2-008	1211066-15		SOIL	01-Nov-12	10:35
RWU2-102	1211066-16		SOIL	01-Nov-12	10:51
RWU2-009	1211066-17		SOIL	01-Nov-12	11:21
RWU2-005	1211066-18		SOIL	01-Nov-12	11:46
RWU2-101	1211066-19		SOIL	01-Nov-12	12:15



WORKORDER # 1211066

TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

[illegible]

For metals or anions, please detail analytes below.

Comments:	QC PACKAGE (check below)	RELINQUISH
-----------	--------------------------	------------

of 33

WORKORDER #	1211066
----------------	---------

Form 202r8




1211066

[illegible]

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:	QC PACKAGE (check below)
	X LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
	LEVEL IV (Std QC + forms + (raw data))
Preservative Key:	1-HCl 2-NHCl 3-H ₂ SO ₄ 4-NH ₄ OH 5-NaHSO ₄ 7-Other 8-d degrees C 9-5035

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Robert S. Bae	02/12/20	1:50
RECEIVED BY		Robert S. Bae		
RELINQUISHED BY				
RECEIVED BY		Lauren Schmidt	11/6/12	10:20
RELINQUISHED BY				
RECEIVED BY				



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Senes Workorder No: 1211066
Project Manager: JRK Initials: LAS Date: 11/6/12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	<input checked="" type="radio"/> NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<input checked="" type="radio"/> RAD ONLY	YES	<input checked="" type="radio"/> NO
Cooler #: <u>1 2</u>			
Temperature (°C): <u>AMB AMB</u>			
No. of custody seals on cooler: <u>1 0</u>			
External µR/hr reading: <u>13 13</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

*6 1211066-19 has ID on COC = RWU2-011 (date=11/1/12)
on bag label = RWU2-101 (date=11/1/12)

If applicable, was the client contacted? ☒ YES ☐ NO ☐ NA Contact: D. Liles Date/Time: 11-6-12
Project Manager Signature / Date: [Signature] 11-6-12

1A6093
1B6093
1C6093
1D6093
1E6093
1F6093
1G6093
1H6093
1I6093
1J6093
1K6093
1L6093
1M6093
1N6093
1O6093
1P6093
1Q6093
1R6093
1S6093
1T6093
1U6093
1V6093
1W6093
1X6093
1Y6093
1Z6093

	UPS Ground	S.D.P.
	Shipping Document	

SHIPMENT FROM

UPS ACCOUNT NO. **875-564**

REFERENCE NUMBER **350180-203(200)**

TELEPHONE

Darrell L. Iles

SENES

8310 S Valley Hwy Suite 3014

Englewood CO 80112

DELIVERY TO

TELEPHONE

Jeff Kujawa

ALS Laboratory Group

225 Commerce Drive

Fort Collins Colorado 80524

021295 1/10 RRD... United Parcel Service, Louisville, KY

WEIGHT 23	WEIGHT If Applicable color	PACKAGE <input type="checkbox"/>	RELEASE <input type="checkbox"/>
---------------------	---	-------------------------------------	-------------------------------------

1211064

13-1

UPS Ground	S.D.P.
-------------------	---------------



	UPS Ground	S.D.P.
	Shipping Document	

SHIPMENT FROM

UPS ACCOUNT NO. **875-564**

REFERENCE NUMBER **350180-203(200)**

TELEPHONE

Darrell L. Iles

SENES

8310 S Valley Hwy Suite 3014

Englewood CO 80112

DELIVERY TO

TELEPHONE

Jeff Kujawa

ALS Laboratory Group

225 Commerce Drive

Fort Collins Colorado 80524

021295 1/10 RRD... United Parcel Service, Louisville, KY

WEIGHT 40	DIMENSIONAL WEIGHT If Applicable color	LARGE PACKAGE <input type="checkbox"/>	SHIPPER RELEASE <input type="checkbox"/>
---------------------	--	--	--

1211064

13
Φ

UPS Ground	S.D.P.
-------------------	---------------



Gamma Spectroscopy Results

PAI 713 Rev 12

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: GS121107-3MB	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 215 g
Library: RA226.LIB	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Result Units: pCi/g
	Date Collected: 09-Nov-12	Run ID: GS121107-3A	File Name: 120147d03
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	
	Date Analyzed: 30-Nov-12		

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	-0.11 +/- 0.19	0.39	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: GS121107-3LCS	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 10 Date Collected: 09-Nov-12 Date Prepared: 09-Nov-12 Date Analyzed: 30-Nov-12	Prep Batch: GS121107-3 QCBatchID: GS121107-3-1 Run ID: GS121107-3A Count Time: 30 minutes	Final Aliquot: 215 g Result Units: pCi/g File Name: 121985d04
Library: RA226.LIB			

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	454 +/- 53	3	469.4	96.7	85 - 115	P,M3

Comments:

Qualifiers/Flags:	Abbreviations:
U - Result is less than the sample specific MDC or less than the associated TPU.	TPU - Total Propagated Uncertainty
LT - Result is less than Requested MDC, greater than sample specific MDC.	MDC - Minimum Detectable Concentration
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.	
Y2 - Chemical Yield outside default limits.	SQ - Spectral quality prevents accurate quantitation.
L - LCS Recovery below lower control limit.	SI - Nuclide identification and/or quantitation is tentative.
H - LCS Recovery above upper control limit.	TI - Nuclide identification is tentative.
P - LCS Recovery within control limits.	R - Nuclide has exceeded 8 half-lives.
M - The requested MDC was not met.	
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.	

Data Package ID: GSS1211066-1

Date Printed: Wednesday, December 05, 2012

ALS Environmental -- FC

LIMS Version: 6.625

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 12

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-005	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 189 g
Lab ID: 1211066-18DUP	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121720d01

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	1.69 +/- 0.37	0.60		1.83 +/- 0.38	0.53		0.265	2.13

Comments:

Duplicate Qualifiers/Flags: U - Result is less than the sample specific MDC. Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed. Y2 - Chemical Yield outside default limits. W - DER is greater than Warning Limit of 1.42 D - DER is greater than Control Limit of 2.13 LT - Result is less than Request MDC, greater than sample specific MDC M - Requested MDC not met. M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC. L - LCS Recovery below lower control limit. H - LCS Recovery above upper control limit. P - LCS, Matrix Spike Recovery within control limits. N - Matrix Spike Recovery outside control limits	Abbreviations: TPU - Total Propagated Uncertainty DER - Duplicate Error Ratio BDL - Below Detection Limit NR - Not Reported SQ - Spectral quality prevents accurate quantitation. SI - Nuclide identification and/or quantitation is tentative. TI - Nuclide identification is tentative. R - Nuclide has exceeded 8 half-lives. G - Sample density differs by more than 15% of LCS density.
--	--

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-101
Lab ID: 1211066-19DUP

Library: RA226.LIB

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 10
Date Collected: 01-Nov-12
Date Prepared: 09-Nov-12
Date Analyzed: 30-Nov-12

Prep Batch: GS121107-3
QCBatchID: GS121107-3-1
Run ID: GS121107-3A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 184 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 121707d02

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	2.01 +/- 0.37	0.46		1.75 +/- 0.34	0.51		0.493	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Date Printed: Wednesday, December 05, 2012

ALS Environmental -- FC

LIMS Version: 6.625

Page 2 of 2

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-008	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 198 g
Lab ID: 1211066-1	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121705d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.79 +/- 0.33	0.41	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-102	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 192 g
Lab ID: 1211066-2	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 120145d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.49 +/- 0.33	0.53	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-011	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 193 g
Lab ID: 1211066-3	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121983d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.28 +/- 0.31	0.45	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-010	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 201 g
Lab ID: 1211066-4	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121331d05

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.20 +/- 0.25	0.33	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-012	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 177 g
Lab ID: 1211066-5	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121448d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.17 +/- 0.33	0.60	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-009	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 197 g
Lab ID: 1211066-6	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121466d07

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.37 +/- 0.30	0.43	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-006	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 199 g
Lab ID: 1211066-7	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 25-Oct-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121629d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.62 +/- 0.32	0.46	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-001	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 183 g
Lab ID: 1211066-8	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 30-Oct-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121476d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.75 +/- 0.37	0.54	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-003	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 181 g
Lab ID: 1211066-9	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 30-Oct-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121453d10

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.32 +/- 0.30	0.43	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-013	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 196 g
Lab ID: 1211066-10	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 31-Oct-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121719d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.09 +/- 0.29	0.45	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-011	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 198 g
Lab ID: 1211066-11	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 31-Oct-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121706d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.14 +/- 0.25	0.34	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-012	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 192 g
Lab ID: 1211066-12	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 31-Oct-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 120146d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.86 +/- 0.26	0.50	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-010	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 198 g
Lab ID: 1211066-13	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 31-Oct-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121984d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.31 +/- 0.30	0.49	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-007	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 205 g
Lab ID: 1211066-14	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121332d05

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.89 +/- 0.21	0.34	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-008	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 171 g
Lab ID: 1211066-15	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121449d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.26 +/- 0.36	0.68	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-102	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 177 g
Lab ID: 1211066-16	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121467d07

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.04 +/- 0.28	0.45	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-009	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 199 g
Lab ID: 1211066-17	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121630d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.68 +/- 0.33	0.42	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-005	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 189 g
Lab ID: 1211066-18	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121477d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.69 +/- 0.37	0.60	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-005	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 189 g
Lab ID: 1211066-18DUP	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121720d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.83 +/- 0.38	0.53	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-101	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 184 g
Lab ID: 1211066-19	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121454d10

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	2.01 +/- 0.37	0.46	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211066-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211066
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-101	Sample Matrix: SOIL	Prep Batch: GS121107-3	Final Aliquot: 184 g
Lab ID: 1211066-19DUP	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-3-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-3A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121707d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.75 +/- 0.34	0.51	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: GSS1211066-1



Gamma Spectroscopy Case Narrative

SENES Consultants Limited Church Rock Phase II – SENES 350180-203

Work Order Number: 1211078

1. The following report consists of analytical results for 13 soil samples received by ALS on 11/06/2012.
2. These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans on 11/09/2012 and stored for at least 21 days to allow ^{222}Rn to approach secular equilibrium with its parent, ^{226}Ra . The degree of in-growth achieved prior to analysis on 11/30/2012 is at least 97.8%. Conservatively assuming a radon emanation efficiency of approximately 50%, the effective radon progeny in-growth for these samples would be greater than 98.9%.
3. The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713. The analyses were completed on 11/30/2012.
4. The results for these samples are reported on a "Dry Weight" basis in units of pCi/gram.
5. Sample volumes were insufficient to allow preparation of duplicates. A duplicate analysis of samples 1211078-3 and -5 was performed in lieu of prepared duplicates.
6. ALS has observed a reproducible low bias in ^{226}Ra results (about -30% for the geometry in question) when using a mixed gamma source for the calibration of HPGe detectors for solid samples. This bias is eliminated by calibration using a NIST traceable ^{226}Ra source in the same geometry and configuration as the samples.
7. The library used for calibration and analysis employs multiple peaks for the ^{226}Ra progeny, ^{214}Pb (352 and 295 keV) and ^{214}Bi (609 and 1120 keV). Using these peaks avoids the use of the problematic ^{226}Ra photo-peak at 186 keV, which suffers from poorly resolvable interference from ^{235}U at the same energy. Final activity results for ^{226}Ra are calculated, using the uncertainty-weighted mean of the activities for the four photo-peaks, by the Seeker gamma spectroscopy software assuming secular equilibrium.




8. There are cases where the sample density is less than the associated calibration standard density. Cases that exceed the limit of $\pm 15\%$ of the density of the calibration standard are flagged with a 'G', denoting a significant density difference between the sample and calibration standard. Consequently, the results may be biased high for the flagged results in this work order. If requested, ALS can perform a transmission spike in order to estimate a magnitude of this bias. The results are reported without further qualification.
9. No further problems were encountered with either the client samples or the associated quality control samples. All remaining quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.


Linda Arend
Radiochemistry Primary Data Reviewer

12-5-12
Date


Radiochemistry Final Data Reviewer

12-05-12
Date

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1211078

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RWU2-004	1211078-1		SOIL	01-Nov-12	17:07
RWU2-002	1211078-2		SOIL	01-Nov-12	17:38
RWU2-001	1211078-3		SOIL	01-Nov-12	17:55
RWU3-015	1211078-4		SOIL	01-Nov-12	18:05
RWU3-014	1211078-5		SOIL	01-Nov-12	18:15
RWU2-003	1211078-6		SOIL	02-Nov-12	7:50
RWU2-014	1211078-7		SOIL	02-Nov-12	8:20
RWU3-013	1211078-8		SOIL	02-Nov-12	9:31
RWU3-002	1211078-9		SOIL	02-Nov-12	12:55
RWU3-004	1211078-10		SOIL	02-Nov-12	13:10
RWU3-005	1211078-11		SOIL	02-Nov-12	13:30
RWU3-007	1211078-12		SOIL	02-Nov-12	16:47
RWU3-101	1211078-13		SOIL	02-Nov-12	17:15



225 Commerce Drive, Fort Collins, Colorado 80524
TE: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202r8

Coelen 2

ALS Laboratory Group
 225 Commerce Drive, Fort Collins, Colorado, 80524
 TEL: (970) 483-1511 FAX: (970) 483-1522

Chain-of-Custody									
WORKORDER #	PAGE	1	of	2					
DISPOSAL	By Lab or	Return to Client							
					DATE	TURNDOWN	30 day		
					SAMPLER	Lifes/Stager/Wilson			
					SITE ID	Church Rock			
					EDD FORMAT				
					PURCHASE ORDER	Account Number 816726858			
					BILL TO COMPANY	SENES Consultants Limited			
					INVOICE ATTN TO	Andrew Pegg			
					ADDRESS	121 Granton Dr., Unit #12			
					CITY / STATE / ZIP	Richmond Hill, ON L4B 3N4			
					PHONE	(905) 764-9380			
					FAX	(905) 764-5586			
					E-MAIL	apegg@senes.ca			
					Matrix	Sample Date	Sample Time	# Sample	Pres. QC
								5	
					RWU2-004	01/11/2012	1707	1	II X
					RWU2-002	01/11/2012	1738	1	II X
					RWU2-001	01/11/2012	1755	1	II X
					RWU3-015	01/11/2012	1805	1	II X
					RWU3-014	01/11/2012	1815	1	II X
					RWU3-003	02/11/2012	750	1	II X
					RWU2-014	02/11/2012	820	1	II X
					RWU3-013	02/11/2012	931	1	II X
					RWU3-002	02/11/2012	1255	1	II X
					RWU3-004	02/11/2012	1310	1	II X
					Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter				
					For metals or anions, please detail analytes below.				
					Comments:				
					QC PACKAGE (check below)				
					X LEVEL II (Standard QC)				
					LEVEL III (Std QC + forms)				
					LEVEL IV (Std QC + forms + raw data)				
					1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-H2SO4 7-Other 8-4 degrees C 9-5055				

Chain-of-Custody

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Form 202r8

Chain-of-Custody										Form 502e	
										WORKORDER # 1211078	
PROJECT NAME	PROJECT No.	SAMPLES	DATE	TURNAROUND	DISPOSAL	PAGE	2	of	2		
Church Rock Phase II	SENE350180-203 (200)	SITE ID Church Rock	02-Nov-12	30 day	By Lab or Return to Client						
EDD FORMAT		ACCOUNT NUMBER \$15128888									
PURCHASE ORDER		BILL TO COMPANY SENE Consultants Limited									
COMPANY NAME SENE		INVOICE ATTN TO Andrea Pegg									
SEND REPORT TO Darrell Liles		ADDRESS 121 Grafton Dr., Unit #12									
CITY / STATE / ZIP Englewood, CO 80112		CITY / STATE / ZIP Richmond Hill, ON L4B 3N4									
PHONE (303) 521-1408		PHONE (905) 764-6580									
FAX		FAX (905) 764-9386									
E-MAIL djliles@senesusa.com		E-MAIL adpegg@senes.ca									
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Samples	Pres.	QC				
(11)	RWU3-005	Soil	02/11/2012	1330	1	I	X				
(12)	RWU3-007	Soil	02/11/2012	1647	1	I	X				
(13)	RWU3-011	Soil	02/11/2012	1715	1	I	X				
Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-sol solid W = water L = liquid E = extract F = filter											
For metals or anions, please detail analytes below.											
Comments:	QC PACKAGE (check below) <input checked="" type="checkbox"/> LEVEL I (Standard DO) <input type="checkbox"/> LEVEL II (Std QC + forms) <input type="checkbox"/> LEVEL IV (Std QC + forms + raw data)										
Signature	PRINTED NAME	DATE	TIME								
<i>[Signature]</i>	Ran Stager	02/Nov									
<i>[Signature]</i>	Ran Stager	02/Nov									
<i>[Signature]</i>	Jansen Schmitz	11/6/12	1615								
Preservative Key:				1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NH4SCl 7-Other 8-4 degrees C 9-5035							



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client:

Senes

Workorder No:

1211078

Project Manager:

IRK

Initials:

IAS

Date:

11/6/12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	<u>NONE</u>	YES	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	<u>NO</u>
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<u>YES</u>	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<u>N/A</u>	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: <u> </u> < green pea <u> </u> > green pea	<u>N/A</u>	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: <u> </u> dusting <u> </u> moderate <u> </u> heavy	<u>N/A</u>	YES	NO
16. Were the samples shipped on ice?		YES	<u>NO</u>
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<u>RAD ONLY</u>	YES	<u>NO</u>
Cooler #: <u>1</u>			
Temperature (°C): <u>ANUB</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>YES</u> / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

*1211078-6 has COC ID=RWU3-003, date=11/2/12 but bag label has ID=RWU2-003, date=11/2/12

*1211078-13 has COC ID=RWU3-011, date=11/2/12 but bag label has ID=RWU3-101, date=11/2/12

If applicable, was the client contacted? YES / NO / NA

Contact:

D. Liles

Date/Time:

11-6-12

Project Manager Signature / Date:

[Signature] 11-6-12

14093 18093 14093 18093 14093 18093

ups **UPS Ground** **S.D.P.**
Shipping Document

WEIGHT **38** DIMENSIONAL WEIGHT **16.6** LARGE PACKAGE ☐ SHIPPER RELEASE ☐

1211078

SHIPMENT FROM
UPS ACCOUNT NO. **875-564**
REFERENCE NUMBER **350180-203(200)**

Darrell Liles **38 717-3257**
SFVES
8310 S Valley Hwy Suite 304
Englewood CO 80112

DELIVERY TO TELEPHONE

Jeff Kujawa
ALS Laboratory Group
205 Commerce Drive
Fort Collins Colorado 80524

Residential ☐

021205 1/10 HRD United Parcel Service, Louisville, KY

UPS Ground **S.D.P.**



TRACKING NUMBER
K181 425 1645

Gamma Spectroscopy Results

PAI 713 Rev 12

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: GS121107-4MB	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 215 g
Library: RA226.LIB	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Result Units: pCi/g
	Date Collected: 09-Nov-12	Run ID: GS121107-4A	File Name: 121456d10
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	
	Date Analyzed: 30-Nov-12		

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	-0.04 +/- 0.15	0.29	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: GS121107-4LCS	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 10 Date Collected: 09-Nov-12 Date Prepared: 09-Nov-12 Date Analyzed: 30-Nov-12	Prep Batch: GS121107-4 QCBatchID: GS121107-4-1 Run ID: GS121107-4A Count Time: 30 minutes	Final Aliquot: 215 g Result Units: pCi/g File Name: 121452d06
Library: RA226.LIB			

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	457 +/- 54	3	469.4	97.2	85 - 115	P,M3

Comments:

Qualifiers/Flags:	Abbreviations:
U - Result is less than the sample specific MDC or less than the associated TPU.	TPU - Total Propagated Uncertainty
LT - Result is less than Requested MDC, greater than sample specific MDC.	MDC - Minimum Detectable Concentration
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.	
Y2 - Chemical Yield outside default limits.	SQ - Spectral quality prevents accurate quantitation.
L - LCS Recovery below lower control limit.	SI - Nuclide identification and/or quantitation is tentative.
H - LCS Recovery above upper control limit.	TI - Nuclide identification is tentative.
P - LCS Recovery within control limits.	R - Nuclide has exceeded 8 half-lives.
M - The requested MDC was not met.	
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.	

Data Package ID: GSS1211078-1

Date Printed: Wednesday, December 05, 2012

ALS Environmental -- FC

LIMS Version: 6.625

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 12

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID:	RWU2-001
Lab ID:	1211078-3DUP

Library: RA226.LIB

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 10
Date Collected: 01-Nov-12
Date Prepared: 09-Nov-12
Date Analyzed: 30-Nov-12

Prep Batch: GS121107-4
QCBatchID: GS121107-4-1
Run ID: GS121107-4A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 182 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 121721d01

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	1.28 +/- 0.29	0.41	G	1.13 +/- 0.31	0.54	G	0.355	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Date Printed: Wednesday, December 05, 2012

ALS Environmental -- FC

LIMS Version: 6.625

Page 1 of 2

Gamma Spectroscopy Results

PAI 713 Rev 12

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID:	RWU3-014
Lab ID:	1211078-5DUP

Library: RA226.LIB

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 10
Date Collected: 01-Nov-12
Date Prepared: 09-Nov-12
Date Analyzed: 30-Nov-12

Prep Batch: GS121107-4
QCBatchID: GS121107-4-1
Run ID: GS121107-4A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 196 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 121708d02

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	1.11 +/- 0.30	0.51		0.88 +/- 0.24	0.40	LT	0.595	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Date Printed: Wednesday, December 05, 2012

ALS Environmental -- FC

LIMS Version: 6.625

Page 2 of 2

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-004	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 195 g
Lab ID: 1211078-1	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121333d05

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.99 +/- 0.35	0.42	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-002	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 209 g
Lab ID: 1211078-2	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121450d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.73 +/- 0.36	0.49	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-001	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 182 g
Lab ID: 1211078-3	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121468d07

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.28 +/- 0.29	0.41	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-001
Lab ID: 1211078-3DUP

Library: RA226.LIB

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 10
Date Collected: 01-Nov-12
Date Prepared: 09-Nov-12
Date Analyzed: 30-Nov-12

Prep Batch: GS121107-4
QCBatchID: GS121107-4-1
Run ID: GS121107-4A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 182 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 121721d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.13 +/- 0.31	0.54	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 halflives.
G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-015	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 178 g
Lab ID: 1211078-4	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121631d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.19 +/- 0.30	0.51	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-014	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 196 g
Lab ID: 1211078-5	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121478d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.11 +/- 0.30	0.51	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-014	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 196 g
Lab ID: 1211078-5DUP	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 01-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121708d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.88 +/- 0.24	0.40	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-003	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 214 g
Lab ID: 1211078-6	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121455d10

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	2.35 +/- 0.39	0.41	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU2-014	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 197 g
Lab ID: 1211078-7	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 120148d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.90 +/- 0.25	0.45	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-013	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 186 g
Lab ID: 1211078-8	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121986d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	2.00 +/- 0.39	0.45	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-002	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 184 g
Lab ID: 1211078-9	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121334d05

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.17 +/- 0.27	0.43	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-004	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 197 g
Lab ID: 1211078-10	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121451d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.38 +/- 0.34	0.59	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-005	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 201 g
Lab ID: 1211078-11	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121469d07

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.45 +/- 0.30	0.41	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-007	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 182 g
Lab ID: 1211078-12	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121632d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.73 +/- 0.34	0.48	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1211078
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: RWU3-101	Sample Matrix: SOIL	Prep Batch: GS121107-4	Final Aliquot: 198 g
Lab ID: 1211078-13	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121107-4-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 02-Nov-12	Run ID: GS121107-4A	Moisture(%): NA
	Date Prepared: 09-Nov-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Nov-12	Report Basis: Dry Weight	File Name: 121479d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.60 +/- 0.34	0.48	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1211078-1

Soil Sample (Borrow Material) Raw Data

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1209098

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Report Due Date: 10/10/2012

Client Sample Number	Lab Sample Number	Test Group	COC Number	Matrix	Date Collected	Time Collected
SO-350180-203-090612-SC-VH	1209098-1	1		SOIL	06-Sep-12	13:25
SO-350180-203-090612-SC-VH	1209098-2	1		SOIL	06-Sep-12	13:28
SO-350180-203-090612-SC-VH	1209098-3	1		SOIL	06-Sep-12	13:33
SO-350180-203-090612-SC-VH	1209098-4	1		SOIL	06-Sep-12	13:39
SO-350180-203-090612-SC-VH	1209098-5	1		SOIL	06-Sep-12	13:45

****Designated QC**

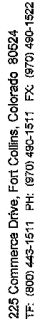
Analytical Methods by Test Group

Test Group: 1

Ra_226/228

SOP642

SW6020



Chain-of-Custody

Form 70243

[illegible]

*Time Zone (Circle):	EST	CST	<u>PST</u>	Matrix:	O = oil	S = soil	NS = non-solid	W = water	L = liquid	E = extract	F = filter
----------------------	-----	-----	------------	---------	---------	----------	----------------	-----------	------------	-------------	------------

For metals or anions, please detail analytes below.

Comments:	Copies to:
-----------	------------

rstager@senesusa.ca

dliles@senesusa.com

"Hold excess sample materials"

Preservative Key:						
1-HCl	2-HNO ₃	3-H ₂ SO ₄	4-NaOH	5-NaHSO ₄	7-Other	8-4 degrees C
9-5035						



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SENES

Workorder No: 1209098

Project Manager: JRK

Initials: LAS Date: 9/10/12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4		<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>AMB</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: JRK 9/10/12



Metals Case Narrative

SENES Consultants Limited Church Rock Phase II – SENES 350180-203

Work Order Number: 1209098

1. This report consists of 5 soil samples.
2. The samples were received intact at ambient temperature by ALS on 9/10/12.
3. The samples were prepared and analyzed based on SW-846, 3rd Edition procedures.

For analysis by ICP-MS, the samples were digested following method 3050B and the current revision of SOP 806.

4. Analysis by ICP-MS followed method 6020A and the current revision of SOP 827.
5. All standards and solutions are NIST traceable and were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold times.

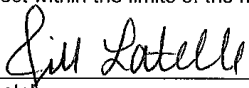
All in house quality control procedures were followed, as described below.

7. General quality control procedures.
 - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in this digestion batch.
 - The preparation (method) blank associated with this digestion batch was below the reporting limit for the requested analytes.
 - All laboratory control sample criteria were met.
 - All initial and continuing calibration blanks were below the reporting limit for the requested analytes.
 - All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes.



- The interference check samples associated with Method 6020A were analyzed.
8. Matrix specific quality control procedures.
- Per method requirements, matrix QC was performed for this analysis. Since a sample from this order number was not the selected quality control (QC) sample, matrix specific QC results are not included in this report.
9. It is a standard practice that samples for ICP-MS are analyzed at a dilution.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Jill Latelle
Inorganics Primary Data Reviewer

9-24-12
Date



Inorganics Final Data Reviewer

9/24/12
Date



Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- Result qualifier -- If the analyte was analyzed for but not detected a "U" is entered.
- QC qualifier -- Specified entries and their meanings are as follows:
 - E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 - M - Duplicate injection precision was not met.
 - N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 - Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 - * - Duplicate analysis (relative percent difference) not within control limits.
 - S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1209098

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
SO-350180-203-090612-SC-VHC	1209098-1		SOIL	06-Sep-12	13:25
SO-350180-203-090612-SC-VHC	1209098-2		SOIL	06-Sep-12	13:28
SO-350180-203-090612-SC-VHC	1209098-3		SOIL	06-Sep-12	13:33
SO-350180-203-090612-SC-VHC	1209098-4		SOIL	06-Sep-12	13:39
SO-350180-203-090612-SC-VHC	1209098-5		SOIL	06-Sep-12	13:45



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SENES

Workorder No: 1209098

Project Manager: JRK

Initials: LAS

Date: 9/10/12

1. Does this project require any special handling in addition to standard ALS procedures?	YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?	<input checked="" type="radio"/> YES	YES NO
5. Are the COC and bottle labels complete and legible?	<input checked="" type="radio"/> YES	YES NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)	<input checked="" type="radio"/> YES	YES NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF <input checked="" type="radio"/> YES	YES NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES NO
10. Is there sufficient sample for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
11. Were all samples placed in the proper containers for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
12. Are all samples within holding times for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
13. Were all sample containers received intact? (not broken or leaking, etc.)	<input checked="" type="radio"/> YES	YES NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES NO
16. Were the samples shipped on ice?	YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES <input checked="" type="radio"/> NO
Cooler #: <u>1</u>		
Temperature (°C): <u>AMB</u>		
No. of custody seals on cooler: <u>0</u>		
External µR/hr reading: <u>12</u>		
Background µR/hr reading: <u>11</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA (If no, see Form 008.)		

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____

Date/Time: _____

Project Manager Signature / Date: _____

*IR Gun #2: Oakton, SN 29922500201-0066

*IR Gun #4: Oakton, SN 2372220101-0002

Total THORIUM
Method SW6020 Revision A
Sample Results

Lab Name: ALS Environmental -- FC
Client Name: SENES Consultants Limited
Client Project ID: Church Rock Phase II SENES 350180-203
Work Order Number: 1209098 **Final Volume:** 100 ml
Reporting Basis: Dry Weight **Matrix:** SOIL
Prep Method: SW3050B **Result Units:** UG/KG
Analyst: Ross Miller

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
SO-350180-203-090612-SC-	1209098-1	09/06/2012	09/12/2012	09/13/2012	1.3	10	14000	20		1.017 g
SO-350180-203-090612-SC-	1209098-2	09/06/2012	09/12/2012	09/13/2012	0.4	10	15000	20		1.02 g
SO-350180-203-090612-SC-	1209098-3	09/06/2012	09/12/2012	09/13/2012	0.7	10	20000	20		1.014 g
SO-350180-203-090612-SC-	1209098-4	09/06/2012	09/12/2012	09/13/2012	1.0	10	21000	20		1.005 g
SO-350180-203-090612-SC-	1209098-5	09/06/2012	09/12/2012	09/13/2012	1.0	10	23000	20		1.036 g

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *im1209098-1*

Total URANIUM
Method SW6020 Revision A
Sample Results

Lab Name: ALS Environmental -- FC
Client Name: SENES Consultants Limited
Client Project ID: Church Rock Phase II SENES 350180-203
Work Order Number: 1209098 **Final Volume:** 100 ml
Reporting Basis: Dry Weight **Matrix:** SOIL
Prep Method: SW3050B **Result Units:** UG/KG
Analyst: Ross Miller

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
SO-350180-203-090612-SC-	1209098-1	09/06/2012	09/12/2012	09/13/2012	1.3	10	560	10		1.017 g
SO-350180-203-090612-SC-	1209098-2	09/06/2012	09/12/2012	09/13/2012	0.4	10	650	9.8		1.02 g
SO-350180-203-090612-SC-	1209098-3	09/06/2012	09/12/2012	09/13/2012	0.7	10	780	9.9		1.014 g
SO-350180-203-090612-SC-	1209098-4	09/06/2012	09/12/2012	09/13/2012	1.0	10	800	10		1.005 g
SO-350180-203-090612-SC-	1209098-5	09/06/2012	09/12/2012	09/13/2012	1.0	10	940	9.8		1.036 g

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *im1209098-1*

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1209098

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: IP120912-5MB

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 12-Sep-12

Date Analyzed: 13-Sep-12

Prep Method: SW3050 Rev B

Prep Batch: IP120912-5

QC Batch ID: IP120912-5-2

Run ID: IM120913-11A1

Cleanup: NONE

Basis: N/A

File Name: 006SMPL.

Sample Aliquot: 1 g

Final Volume: 100 ml

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-29-1	THORIUM	10	20	20	U	
7440-61-1	URANIUM	10	10	10	U	

Data Package ID: *im1209098-1*

Date Printed: Monday, September 24, 2012

ALS Environmental -- FC

LIMS Version: 6.613

Page 1 of 1

ICPMS Metals
Method SW6020A
Laboratory Control Sample

Lab Name: ALS Environmental -- FC
Work Order Number: 1209098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: IP120912-5LCS	Sample Matrix: SOIL	Prep Batch: IP120912-5	Sample Aliquot: 1 g
	% Moisture: N/A	QCBatchID: IP120912-5-2	Final Volume: 100 ml
	Date Collected: N/A	Run ID: IM120913-11A1	Result Units: UG/KG
	Date Extracted: 09/12/2012	Cleanup: NONE	Clean DF: 1
	Date Analyzed: 09/13/2012	Basis: N/A	
	Prep Method: SW3050B	File Name: 007SMPL.	

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-29-1	THORIUM	1000	967	20		97	80 - 120%
7440-61-1	URANIUM	1000	1030	10		103	80 - 120%

Data Package ID: *im1209098-1*

Date Printed: Monday, September 24, 2012

ALS Environmental -- FC

LIMS Version: 6.613

Page 1 of 1



Gamma Spectroscopy Case Narrative

SENES Consultants Limited Church Rock Phase II – SENES 350180-203

Work Order Number: 1209098

1. The following report consists of analytical results for five soil samples received by ALS on 09/10/2012.
2. These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans on 09/11/2012 and stored for at least 21 days to allow ^{222}Rn to approach secular equilibrium with its parent, ^{226}Ra . The degree of in-growth achieved prior to analysis on 10/02/2012 is at least 97.8%. Conservatively assuming a radon emanation efficiency of approximately 50%, the effective radon progeny in-growth for these samples would be greater than 98.9%.
3. The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713. The analyses were completed on 10/02/2012.
4. The results for these samples are reported on a "Dry Weight" basis in units of pCi/gram.
5. ALS has observed a reproducible low bias in ^{226}Ra results (about -30% for the geometry in question) when using a mixed gamma source for the calibration of HPGe detectors for solid samples. This bias is eliminated by calibration using a NIST traceable ^{226}Ra source in the same geometry and configuration as the samples.
6. The library used for calibration and analysis employs multiple peaks for the ^{226}Ra progeny, ^{214}Pb (352 and 295 keV) and ^{214}Bi (609 and 1120 keV). Using these peaks avoids the use of the problematic ^{226}Ra photo-peak at 186 keV, which suffers from poorly resolvable interference from ^{235}U at the same energy. Final activity results for ^{226}Ra are calculated, using the uncertainty-weighted mean of the activities for the four photo-peaks, by the Seeker gamma spectroscopy software assuming secular equilibrium.
7. No problems were encountered with either the client samples or the associated quality control samples. All quality control criteria were met.

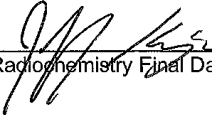


The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Linda Arend
Radiochemistry Primary Data Reviewer

10-04-12
Date



Radiochemistry Final Data Reviewer

10-4-12
Date

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1209098

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
SO-350180-203-090612-SC-VHC	1209098-1		SOIL	06-Sep-12	13:25
SO-350180-203-090612-SC-VHC	1209098-2		SOIL	06-Sep-12	13:28
SO-350180-203-090612-SC-VHC	1209098-3		SOIL	06-Sep-12	13:33
SO-350180-203-090612-SC-VHC	1209098-4		SOIL	06-Sep-12	13:39
SO-350180-203-090612-SC-VHC	1209098-5		SOIL	06-Sep-12	13:45



ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

[illegible]



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SENES

Workorder No: 1209098

Project Manager: JRK

Initials: LAS

Date: 9/10/12

1. Does this project require any special handling in addition to standard ALS procedures?	YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?	<input checked="" type="radio"/> YES	YES NO
5. Are the COC and bottle labels complete and legible?	<input checked="" type="radio"/> YES	YES NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)	<input checked="" type="radio"/> YES	YES NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF <input checked="" type="radio"/> YES	YES NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES NO
10. Is there sufficient sample for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
11. Were all samples placed in the proper containers for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
12. Are all samples within holding times for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
13. Were all sample containers received intact? (not broken or leaking, etc.)	<input checked="" type="radio"/> YES	YES NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES NO
16. Were the samples shipped on ice?	YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES <input checked="" type="radio"/> NO
Cooler #: <u>1</u>		
Temperature (°C): <u>AMB</u>		
No. of custody seals on cooler: <u>0</u>		
External µR/hr reading: <u>12</u>		
Background µR/hr reading: <u>11</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA (If no, see Form 008.)		

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____

Date/Time: _____

Project Manager Signature / Date: [Signature] 9/10/12

Gamma Spectroscopy Results

PAI 713 Rev 12

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: GS120910-1MB	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 215 g
Library: RA226.LIB	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Result Units: pCi/g
	Date Collected: 10-Sep-12	Run ID: GS120910-1A	File Name: 120912d05
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	
	Date Analyzed: 02-Oct-12		

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	-0.03 +/- 0.17	0.32	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: GSS1209098-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1209098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: GS120910-1LCS	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 215 g
Library: RA226.LIB	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Result Units: pCi/g
	Date Collected: 10-Sep-12	Run ID: GS120910-1A	File Name: 121239d10
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	
	Date Analyzed: 02-Oct-12		

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	449 +/- 53	2	469.5	95.6	85 - 115	P,M3

Comments:

Qualifiers/Flags:	Abbreviations:
U - Result is less than the sample specific MDC or less than the associated TPU.	TPU - Total Propagated Uncertainty
LT - Result is less than Requested MDC, greater than sample specific MDC.	MDC - Minimum Detectable Concentration
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.	
Y2 - Chemical Yield outside default limits.	SQ - Spectral quality prevents accurate quantitation.
L - LCS Recovery below lower control limit.	SI - Nuclide identification and/or quantitation is tentative.
H - LCS Recovery above upper control limit.	TI - Nuclide identification is tentative.
P - LCS Recovery within control limits.	R - Nuclide has exceeded 8 half-lives.
M - The requested MDC was not met.	
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.	

Data Package ID: GSS1209098-1

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC

LIMS Version: 6.615

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 230 g
Lab ID: 1209098-1	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121367d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.33 +/- 0.29	0.37	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209098-1

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC

LIMS Version: 6.615

Page 1 of 5

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 229 g
Lab ID: 1209098-2	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121387d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.33 +/- 0.28	0.44	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209098-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 199 g
Lab ID: 1209098-3	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121616d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.92 +/- 0.39	0.55	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209098-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 231 g
Lab ID: 1209098-4	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 120910d05

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.48 +/- 0.27	0.38	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209098-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 232 g
Lab ID: 1209098-5	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121368d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.96 +/- 0.36	0.48	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209098-1

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1209099

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Report Due Date: 10/10/2012

Client Sample Number	Lab Sample Number	Test Group	COC Number	Matrix	Date Collected	Time Collected
SO-350180-203-090612-SC-Eas	1209099-1	1		SOIL	06-Sep-12	11:30
SO-350180-203-090612-SC-Eas	1209099-2	1		SOIL	06-Sep-12	11:36
SO-350180-203-090612-SC-Eas	1209099-3	1		SOIL	06-Sep-12	11:50
SO-350180-203-090612-SC-Eas	1209099-4	1		SOIL	06-Sep-12	11:58
SO-350180-203-090612-SC-Eas	1209099-5	1		SOIL	06-Sep-12	12:03
SO-350180-203-090612-SC-Eas	1209099-6	1		SOIL	06-Sep-12	12:11
SO-350180-203-090612-SC-Eas	1209099-7	1		SOIL	06-Sep-12	12:20
SO-350180-203-090612-SC-Eas	1209099-8	1		SOIL	06-Sep-12	12:28
SO-350180-203-090612-SC-Eas	1209099-9	1		SOIL	06-Sep-12	12:35
SO-350180-203-090612-SC-Eas	1209099-10	1		SOIL	06-Sep-12	12:45

****Designated QC**

Analytical Methods by Test Group

Test Group: 1

Ra_226/228

SOP642

SW6020



ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (950) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202a

PROJECT NAME Church Rock Phase II		SAMPLER Stephen Corning		DATE September 6 2012		PAGE 1 of 1	
PROJECT No. SENES 350180-203		SITE ID McConnel East Pit		TURNAROUND 15days		DISPOSAL By Lab or Return to Client	
COMPANY NAME SENES		EDD FORMAT					
SEND REPORT TO Darrell Liles		PURCHASE ORDER Account Number 816126853					
ADDRESS 8310 S. Valley Hwy., Suite 3014		BILL TO COMPANY SENES Consultants Limited					
CITY / STATE / ZIP Englewood, CO 80112		INVOICE ATTN TO Andrea Pegg					
PHONE (303) 521-1406		ADDRESS 121 Granton Dr., Unit #12					
FAX		CITY / STATE / ZIP Richmond Hill, ON L4B 3N4					
E-MAIL dliles@senesusa.com		PHONE (905) 764-9380					
		FAX (905) 764-9386					
		E-MAIL adscq@senes.ca					
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Sample	Pres.	QC
1	SO-350180-203-090612-SC-East Pit-001	soil	9/6/2012	9-6-12 1130	1-bag	no	RA-226 Uranium Total
2	SO-350180-203-090612-SC-East Pit-002	soil	9/6/2012	9-6-12 1136	1-bag	no	
3	SO-350180-203-090612-SC-East Pit-003	soil	9/6/2012	9-6-12 1150	1-bag	no	
4	SO-350180-203-090612-SC-East Pit-004	soil	9/6/2012	9-6-12 1158	1-bag	no	
5	SO-350180-203-090612-SC-East Pit-005	soil	9/6/2012	9-6-12 1203	1-bag	no	
6	SO-350180-203-090612-SC-East Pit-006	soil	9/6/2012	9-6-12 1211	1-bag	no	
7	SO-350180-203-090612-SC-East Pit-007	soil	9/6/2012	9-6-12 1220	1-bag	no	
8	SO-350180-203-090612-SC-East Pit-008	soil	9/6/2012	9-6-12 1228	1-bag	no	
9	SO-350180-203-090612-SC-East Pit-009	soil	9/6/2012	9-6-12 1235	1-bag	no	
10	SO-350180-203-090612-SC-East Pit-010	soil	9/6/2012	9-6-12 1245	1-bag	no	

*Time Zone (Circle): EST CST MST PST Matrix O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:	Copies to:
rstager@senesusa.ca	
dliles@senesusa.com	

"Hold excess sample materials"

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	<i>Stephen M. Corning</i>	Stephen M. Corning	9/7/12	0900
RELINQUISHED BY	<i>Andrea Pegg</i>	Andrea Pegg	9/10/12	0930
RECEIVED BY				
RELINQUISHED BY				



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SENES

Workorder No: 1209099

Project Manager: JRK

Initials: LAS Date: 9/10/12

1. Does this project require any special handling in addition to standard ALS procedures?	YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	<u>NONE</u>	YES NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?	<u>YES</u>	YES NO
5. Are the COC and bottle labels complete and legible?	<u>YES</u>	YES NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)	<u>YES</u>	YES NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<u>YES</u> NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<u>N/A</u>	YES NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	YES NO
10. Is there sufficient sample for the requested analyses?	<u>YES</u>	YES NO
11. Were all samples placed in the proper containers for the requested analyses?	<u>YES</u>	YES NO
12. Are all samples within holding times for the requested analyses?	<u>YES</u>	YES NO
13. Were all sample containers received intact? (not broken or leaking, etc.)	YES	<u>NO</u> *
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<u>N/A</u>	YES NO
15. Do any water samples contain sediment? Amount of sediment: ____ dusting ____ moderate ____ heavy	<u>N/A</u>	YES NO
16. Were the samples shipped on ice?	YES	<u>NO</u>
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4 RAD ONLY	YES	<u>NO</u>
Cooler #: <u>1</u>		
Temperature (°C): <u>AMB</u>		
No. of custody seals on cooler: <u>0</u>		
External µR/hr reading: <u>13</u>		
Background µR/hr reading: <u>11</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>YES</u> NO / NA (If no, see Form 008.)		

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

*13 1209099-7 (East Pit-007) arrived with broken zipper, approximately 50% of volume spilled into bottom of cooler - PM notified - plenty of volume for analysis

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: _____



Metals Case Narrative

SENES Consultants Limited Church Rock Phase II – SENES 350180-203

Work Order Number: 1209099

1. This report consists of 10 soil samples.
2. The samples were received intact at ambient temperature by ALS on 9/10/12.
3. The samples were prepared and analyzed based on SW-846, 3rd Edition procedures.

For analysis by ICP-MS, the samples were digested following method 3050B and the current revision of SOP 806.

4. Analysis by ICP-MS followed method 6020A and the current revision of SOP 827.
5. All standards and solutions are NIST traceable and were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold times.

All in house quality control procedures were followed, as described below.

7. General quality control procedures.
 - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in this digestion batch.
 - The preparation (method) blank associated with this digestion batch was below the reporting limit for the requested analytes.
 - All laboratory control sample criteria were met.
 - All initial and continuing calibration blanks were below the reporting limit for the requested analytes.
 - All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes.

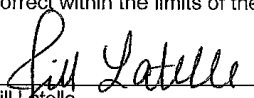


- The interference check samples associated with Method 6020A were analyzed.
8. Matrix specific quality control procedures.

Per method requirements, matrix QC was performed for this analysis. Since a sample from this order number was not the selected quality control (QC) sample, matrix specific QC results are not included in this report.

9. It is a standard practice that samples for ICP-MS are analyzed at a dilution.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Jill Latelle
Inorganics Primary Data Reviewer

9-24-12
Date



Mike Jones
Inorganics Final Data Reviewer

9/24/12
Date



Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- Result qualifier -- If the analyte was analyzed for but not detected a "U" is entered.
- QC qualifier -- Specified entries and their meanings are as follows:
 - E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 - M - Duplicate injection precision was not met.
 - N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 - Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 - * - Duplicate analysis (relative percent difference) not within control limits.
 - S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1209099

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
SO-350180-203-090612-SC-East	1209099-1		SOIL	06-Sep-12	11:30
SO-350180-203-090612-SC-East	1209099-2		SOIL	06-Sep-12	11:36
SO-350180-203-090612-SC-East	1209099-3		SOIL	06-Sep-12	11:50
SO-350180-203-090612-SC-East	1209099-4		SOIL	06-Sep-12	11:58
SO-350180-203-090612-SC-East	1209099-5		SOIL	06-Sep-12	12:03
SO-350180-203-090612-SC-East	1209099-6		SOIL	06-Sep-12	12:11
SO-350180-203-090612-SC-East	1209099-7		SOIL	06-Sep-12	12:20
SO-350180-203-090612-SC-East	1209099-8		SOIL	06-Sep-12	12:28
SO-350180-203-090612-SC-East	1209099-9		SOIL	06-Sep-12	12:35
SO-350180-203-090612-SC-East	1209099-10		SOIL	06-Sep-12	12:45



ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 20278

PROJECT NAME	PROJECT No.	COMPANY NAME	SEND REPORT TO	ADDRESS	CITY / STATE / ZIP	PHONE	FAX	E-MAIL	SAMPLER	DATE	TURNAROUND	DISPOSAL	WORKORDER #
Church Rock Phase II	SENES 350180-203	SENES	Darrell Liles	8310 S. Valley Hwy., Suite 3014	Englewood, CO 80112	(303) 521-1406		dliles@senesusa.com	Stephen Corning	September 6 2012	15 days		1209009
EDD FORMAT										McCommel East Pit			PAGE 1 of 1
PURCHASE ORDER										Account Number 816126858			By Lab or Return to Client
BILL TO COMPANY										SENES Consultants Limited			
INVOICE ATTN TO										Andrea Pegg			
ADDRESS										121 Granton Dr., Unit #12			
CITY / STATE / ZIP										Richmond Hill, ON L4B 3N4			
PHONE										(905) 764-9380			
FAX										(905) 764-9386			
E-MAIL										apegg@senes.ca			
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Sample	Pres.	QC	Th					
1	SO-350180-203-090612-SC-East Pit-001	soil	9/6/2012	9-6-12 1130	1-bag	no							
2	SO-350180-203-090612-SC-East Pit-002	soil	9/6/2012	9-6-12 1136	1-bag	no							
3	SO-350180-203-090612-SC-East Pit-003	soil	9/6/2012	9-6-12 1150	1-bag	no							
4	SO-350180-203-090612-SC-East Pit-004	soil	9/6/2012	9-6-12 1158	1-bag	no							
5	SO-350180-203-090612-SC-East Pit-005	soil	9/6/2012	9-6-12 1203	1-bag	no							
6	SO-350180-203-090612-SC-East Pit-006	soil	9/6/2012	9-6-12 1211	1-bag	no							
7	SO-350180-203-090612-SC-East Pit-007	soil	9/6/2012	9-6-12 1220	1-bag	no							
8	SO-350180-203-090612-SC-East Pit-008	soil	9/6/2012	9-6-12 1228	1-bag	no							
9	SO-350180-203-090612-SC-East Pit-009	soil	9/6/2012	9-6-12 1235	1-bag	no							
10	SO-350180-203-090612-SC-East Pit-010	soil	9/6/2012	9-6-12 1245	1-bag	no							

Fine Zone (Circle): EST CST WST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

or metals or anions, please detail analytes below.

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	Stephen Corning	Stephen M Corning	9/7/12	0900
RELINQUISHED BY	Andrea Pegg	Lauren Schmitz	9/10/12	0930
RELINQUISHED BY				
RELINQUISHED BY				

QC PACKAGE (check below)	COPIES TO:
X LEVEL II (Standard QC)	stager@senesusa.ca
LEVEL III (Std QC + forms)	liles@senesusa.com
LEVEL IV (Std QC + forms + raw data)	

5 of 5

-fold excess sample materials"

reservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSD4 7-Other 8-4 degrees C 9-5035



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SENEB

Workorder No: 1209099

Project Manager: JRK

Initials: LAS

Date: 9/10/12

1. Does this project require any special handling in addition to standard ALS procedures?	YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?	<input checked="" type="radio"/> YES	YES NO
5. Are the COC and bottle labels complete and legible?	<input checked="" type="radio"/> YES	YES NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)	<input checked="" type="radio"/> YES	YES NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF <input checked="" type="radio"/> YES	YES NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES NO
10. Is there sufficient sample for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
11. Were all samples placed in the proper containers for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
12. Are all samples within holding times for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
13. Were all sample containers received intact? (not broken or leaking, etc.)	YES	<input checked="" type="radio"/> NO *
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES NO
16. Were the samples shipped on ice?	YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES <input checked="" type="radio"/> NO
Cooler #: <u>1</u>		
Temperature (°C): <u>Amb</u>		
No. of custody seals on cooler: <u>0</u>		
External µR/hr reading: <u>13</u>		
Background µR/hr reading: <u>11</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA (If no, see Form 008.)		

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

*13 1209099-7 (East Pit-007) arrived with broken zipper, approximately 50% of volume spilled into bottom of cooler - PM notified - plenty of volume for analysis

If applicable, was the client contacted? ☒ YES / NO / NA Contact: Darrell Liles Date/Time: email

Project Manager Signature / Date: JRK 9/10/12

8011 0307 9265

1

Rev. Date 1/12 • Part #16P002 • ©2012 FedEx • PRINTED IN U.S.A. SRF

Total THORIUM
Method SW6020 Revision A
Sample Results

Lab Name: ALS Environmental -- FC
Client Name: SENES Consultants Limited
Client Project ID: Church Rock Phase II SENES 350180-203
Work Order Number: 1209099 Final Volume: 100 ml
Reporting Basis: Dry Weight Matrix: SOIL
Prep Method: SW3050B Result Units: UG/KG
Analyst: Ross Miller

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
SO-350180-203-090612-SC-	1209099-1	09/06/2012	09/13/2012	09/13/2012	2.6	10	2300	20		1.044 g
SO-350180-203-090612-SC-	1209099-2	09/06/2012	09/13/2012	09/13/2012	0.9	10	1300	20		1.018 g
SO-350180-203-090612-SC-	1209099-3	09/06/2012	09/13/2012	09/13/2012	4.4	10	1600	20		1.045 g
SO-350180-203-090612-SC-	1209099-4	09/06/2012	09/13/2012	09/13/2012	1.6	10	2200	20		1.01 g
SO-350180-203-090612-SC-	1209099-5	09/06/2012	09/13/2012	09/13/2012	1.1	10	1900	20		1.006 g
SO-350180-203-090612-SC-	1209099-6	09/06/2012	09/13/2012	09/13/2012	2.4	10	2400	20		1.046 g
SO-350180-203-090612-SC-	1209099-7	09/06/2012	09/13/2012	09/13/2012	1.8	10	1900	20		1.033 g
SO-350180-203-090612-SC-	1209099-8	09/06/2012	09/13/2012	09/13/2012	2.5	10	2200	20		1.004 g
SO-350180-203-090612-SC-	1209099-9	09/06/2012	09/13/2012	09/13/2012	1.9	10	1900	20		1.021 g
SO-350180-203-090612-SC-	1209099-10	09/06/2012	09/13/2012	09/13/2012	2.9	10	1500	20		1.013 g

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *im1209099-1*

Date Printed: Monday, September 24, 2012

ALS Environmental -- FC
LIMS Version: 6.613

Page 1 of 2

Total URANIUM
Method SW6020 Revision A
Sample Results

Lab Name: ALS Environmental -- FC
Client Name: SENES Consultants Limited
Client Project ID: Church Rock Phase II SENES 350180-203
Work Order Number: 1209099 **Final Volume:** 100 ml
Reporting Basis: Dry Weight **Matrix:** SOIL
Prep Method: SW3050B **Result Units:** UG/KG
Analyst: Ross Miller

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
SO-350180-203-090612-SC-	1209099-1	09/06/2012	09/13/2012	09/13/2012	2.6	10	620	9.8		1.044 g
SO-350180-203-090612-SC-	1209099-2	09/06/2012	09/13/2012	09/13/2012	0.9	10	210	9.9		1.018 g
SO-350180-203-090612-SC-	1209099-3	09/06/2012	09/13/2012	09/13/2012	4.4	10	210	10		1.045 g
SO-350180-203-090612-SC-	1209099-4	09/06/2012	09/13/2012	09/13/2012	1.6	10	370	10		1.01 g
SO-350180-203-090612-SC-	1209099-5	09/06/2012	09/13/2012	09/13/2012	1.1	10	250	10		1.006 g
SO-350180-203-090612-SC-	1209099-6	09/06/2012	09/13/2012	09/13/2012	2.4	10	290	9.8		1.046 g
SO-350180-203-090612-SC-	1209099-7	09/06/2012	09/13/2012	09/13/2012	1.8	10	230	9.9		1.033 g
SO-350180-203-090612-SC-	1209099-8	09/06/2012	09/13/2012	09/13/2012	2.5	10	290	10		1.004 g
SO-350180-203-090612-SC-	1209099-9	09/06/2012	09/13/2012	09/13/2012	1.9	10	240	10		1.021 g
SO-350180-203-090612-SC-	1209099-10	09/06/2012	09/13/2012	09/13/2012	2.9	10	210	10		1.013 g

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *im1209099-1*

Date Printed: Monday, September 24, 2012

ALS Environmental -- FC
 LIMS Version: 6.613

Page 2 of 2

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1209099

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: IP120913-3MB

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 13-Sep-12

Date Analyzed: 13-Sep-12

Prep Method: SW3050 Rev B

Prep Batch: IP120913-3

QC Batch ID: IP120913-3-1

Run ID: IM120913-11A1

Cleanup: NONE

Basis: N/A

File Name: 061SMPL.

Sample Aliquot: 1 g

Final Volume: 100 ml

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-29-1	THORIUM	10	20	20	U	
7440-61-1	URANIUM	10	10	10	U	

Data Package ID: *im1209099-1*

Date Printed: Monday, September 24, 2012

ALS Environmental -- FC

LIMS Version: 6.613

Page 1 of 1

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1209099

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: IP120913-3LCS

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09/13/2012

Date Analyzed: 09/13/2012

Prep Method: SW3050B

Prep Batch: IP120913-3

QCBatchID: IP120913-3-1

Run ID: IM120913-11A1

Cleanup: NONE

Basis: N/A

File Name: 062SMPL.

Sample Aliquot: 1 g

Final Volume: 100 ml

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-29-1	THORIUM	1000	939	20		94	80 - 120%
7440-61-1	URANIUM	1000	1020	10		102	80 - 120%

Data Package ID: *im1209099-1*

Date Printed: Monday, September 24, 2012

ALS Environmental -- FC

LIMS Version: 6.613

Page 1 of 1



Gamma Spectroscopy Case Narrative

SENES Consultants Limited Church Rock Phase II – SENES 350180-203

Work Order Number: 1209099

1. The following report consists of analytical results for 10 soil samples received by ALS on 09/10/2012.
2. These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans on 09/11/2012 and stored for at least 21 days to allow ^{222}Rn to approach secular equilibrium with its parent, ^{226}Ra . The degree of in-growth achieved prior to analysis on 10/02/2012 is at least 97.8%. Conservatively assuming a radon emanation efficiency of approximately 50%, the effective radon progeny in-growth for these samples would be greater than 98.9%.
3. The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713. The analyses were completed on 10/02/2012.
4. The results for these samples are reported on a "Dry Weight" basis in units of pCi/gram.
5. Sample volumes were insufficient to allow preparation of duplicates. A duplicate analysis of samples 1209099-2 and -4 was performed in lieu of prepared duplicates.
6. ALS has observed a reproducible low bias in ^{226}Ra results (about -30% for the geometry in question) when using a mixed gamma source for the calibration of HPGe detectors for solid samples. This bias is eliminated by calibration using a NIST traceable ^{226}Ra source in the same geometry and configuration as the samples.
7. The library used for calibration and analysis employs multiple peaks for the ^{226}Ra progeny, ^{214}Pb (352 and 295 keV) and ^{214}Bi (609 and 1120 keV). Using these peaks avoids the use of the problematic ^{226}Ra photo-peak at 186 keV, which suffers from poorly resolvable interference from ^{235}U at the same energy. Final activity results for ^{226}Ra are calculated, using the uncertainty-weighted mean of the activities for the four photo-peaks, by the Seeker gamma spectroscopy software assuming secular equilibrium.



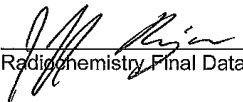
8. No problems were encountered with either the client samples or the associated quality control samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Linda Arend
Radiochemistry Primary Data Reviewer

10-04-12
Date



J. M. Ryan
Radiochemistry Final Data Reviewer

10-4-12
Date

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1209099

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
SO-350180-203-090612-SC-East	1209099-1		SOIL	06-Sep-12	11:30
SO-350180-203-090612-SC-East	1209099-2		SOIL	06-Sep-12	11:36
SO-350180-203-090612-SC-East	1209099-3		SOIL	06-Sep-12	11:50
SO-350180-203-090612-SC-East	1209099-4		SOIL	06-Sep-12	11:58
SO-350180-203-090612-SC-East	1209099-5		SOIL	06-Sep-12	12:03
SO-350180-203-090612-SC-East	1209099-6		SOIL	06-Sep-12	12:11
SO-350180-203-090612-SC-East	1209099-7		SOIL	06-Sep-12	12:20
SO-350180-203-090612-SC-East	1209099-8		SOIL	06-Sep-12	12:28
SO-350180-203-090612-SC-East	1209099-9		SOIL	06-Sep-12	12:35
SO-350180-203-090612-SC-East	1209099-10		SOIL	06-Sep-12	12:45

ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202r8

ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 2027a

PROJECT NAME	PROJECT No.	COMPANY NAME	SEND REPORT TO	ADDRESS	CITY / STATE / ZIP	PHONE	FAX	E-MAIL	SAMPLER	STEPHEN CORNING	DATE	TURNAROUND	SEPTEMBER 6 2012	15 days	WORKORDER #	PAGE	1 of 1	By Lab or	Return to Client
Church Rock Phase II	SENES 350180-203	SENES	Darrell Liles	8310 S. Valley Hwy., Suite 3014	Englewood, CO 80112	(303) 521-1406		dliles@senesusa.com	SITE ID	McConnel East Pit									
									EDD FORMAT	Account Number 816126858									
									PURCHASE ORDER	SENES Consultants Limited									
									BILL TO COMPANY	Andrea Pegg									
									INVOICE ATTN TO	121 Granton Dr., Unit #12									
									ADDRESS	Richmond Hill, ON L4B 3N4									
									CITY / STATE / ZIP										
									PHONE	(905) 764-9380									
									FAX	(905) 764-9386									
									E-MAIL	adsgg@senes.ca									
Lab ID	Field ID	Matrix	Sample Date	Sample Time	Sample #	Pres.	QC	Uranium Total											
1	SO-350180-203-090612-SC-East Pit-001	soil	9/6/2012	9-6-12 1130	1-bag	no	x	x											
2	SO-350180-203-090612-SC-East Pit-002	soil	9/6/2012	9-6-12 1136	1-bag	no	x	x											
3	SO-350180-203-090612-SC-East Pit-003	soil	9/6/2012	9-6-12 1150	1-bag	no	x	x											
4	SO-350180-203-090612-SC-East Pit-004	soil	9/6/2012	9-6-12 1158	1-bag	no	x	x											
5	SO-350180-203-090612-SC-East Pit-005	soil	9/6/2012	9-6-12 1203	1-bag	no	x	x											
6	SO-350180-203-090612-SC-East Pit-006	soil	9/6/2012	9-6-12 1211	1-bag	no	x	x											
7	SO-350180-203-090612-SC-East Pit-007	soil	9/6/2012	9-6-12 1220	1-bag	no	x	x											
8	SO-350180-203-090612-SC-East Pit-008	soil	9/6/2012	9-6-12 1228	1-bag	no	x	x											
9	SO-350180-203-090612-SC-East Pit-009	soil	9/6/2012	9-6-12 1235	1-bag	no	x	x											
10	SO-350180-203-090612-SC-East Pit-010	soil	9/6/2012	9-6-12 1245	1-bag	no	x	x											
Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter																			
for metals or anions, please detail analytes below.																			
Comments: Copies to: stager@senesusa.ca dliles@senesusa.com																			
Hold excess sample materials'																			
Responsible Key: 1-HCI 2-HNO3 3-H2SO4 4-NaOH 5-NH4SCl 7-OHr 8-4 degrees C 9-5035																			



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SENEB

Workorder No: 1209099

Project Manager: JRK

Initials: LAS Date: 9/10/12

1. Does this project require any special handling in addition to standard ALS procedures?	YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?	<input checked="" type="radio"/> YES	YES NO
5. Are the COC and bottle labels complete and legible?	<input checked="" type="radio"/> YES	YES NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)	<input checked="" type="radio"/> YES	YES NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF <input checked="" type="radio"/> YES	YES NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES NO
10. Is there sufficient sample for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
11. Were all samples placed in the proper containers for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
12. Are all samples within holding times for the requested analyses?	<input checked="" type="radio"/> YES	YES NO
13. Were all sample containers received intact? (not broken or leaking, etc.)	YES	<input checked="" type="radio"/> NO *
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES NO
16. Were the samples shipped on ice?	YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES <input checked="" type="radio"/> NO
Cooler #: <u>1</u>		
Temperature (°C): <u>Amb</u>		
No. of custody seals on cooler: <u>0</u>		
External µR/hr reading: <u>13</u>		
Background µR/hr reading: <u>11</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA (If no, see Form 008.)		

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

*13 1209099-7 (East Pit-007) arrived with broken zipper, approximately 50% of volume spilled into bottom of cooler - PM notified - plenty of volume for analysis

If applicable, was the client contacted? ☒ YES / NO / NA Contact: Darrell Liles Date/Time: email

Project Manager Signature / Date: JRK 9/10/12

Gamma Spectroscopy Results

PAI 713 Rev 12

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: GS120910-1MB	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 215 g
Library: RA226.LIB	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Result Units: pCi/g
	Date Collected: 10-Sep-12	Run ID: GS120910-1A	File Name: 120912d05
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	
	Date Analyzed: 02-Oct-12		

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	-0.03 +/- 0.17	0.32	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: GSS1209099-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: GS120910-1LCS	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 10 Date Collected: 10-Sep-12 Date Prepared: 10-Sep-12 Date Analyzed: 02-Oct-12	Prep Batch: GS120910-1 QCBatchID: GS120910-1-1 Run ID: GS120910-1A Count Time: 30 minutes	Final Aliquot: 215 g Result Units: pCi/g File Name: 121239d10
Library: RA226.LIB			

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	449 +/- 53	2	469.5	95.6	85 - 115	P,M3

Comments:

Qualifiers/Flags:	Abbreviations:
U - Result is less than the sample specific MDC or less than the associated TPU.	TPU - Total Propagated Uncertainty
LT - Result is less than Requested MDC, greater than sample specific MDC.	MDC - Minimum Detectable Concentration
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.	
Y2 - Chemical Yield outside default limits.	SQ - Spectral quality prevents accurate quantitation.
L - LCS Recovery below lower control limit.	SI - Nuclide identification and/or quantitation is tentative.
H - LCS Recovery above upper control limit.	TI - Nuclide identification is tentative.
P - LCS Recovery within control limits.	R - Nuclide has exceeded 8 half-lives.
M - The requested MDC was not met.	
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.	

Data Package ID: GSS1209099-1

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC

LIMS Version: 6.615

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 12

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC
Lab ID: 1209099-2DUP

Library: RA226.LIB

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 10
Date Collected: 06-Sep-12
Date Prepared: 10-Sep-12
Date Analyzed: 02-Oct-12

Prep Batch: GS120910-1
QCBatchID: GS120910-1-1
Run ID: GS120910-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 214 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 121617d04

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	0.56 +/- 0.21	0.29	LT, TI	0.46 +/- 0.17	0.38	LT	0.38	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC

LIMS Version: 6.615

Page 1 of 2

Gamma Spectroscopy Results

PAI 713 Rev 12

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC
Lab ID: 1209099-4DUP

Library: RA226.LIB

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 10
Date Collected: 06-Sep-12
Date Prepared: 10-Sep-12
Date Analyzed: 02-Oct-12

Prep Batch: GS120910-1
QCBatchID: GS120910-1-1
Run ID: GS120910-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 207 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 121165d07

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	0.90 +/- 0.25	0.43	LT	0.82 +/- 0.21	0.33	LT	0.236	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC

LIMS Version: 6.615

Page 2 of 2

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 221 g
Lab ID: 1209099-1	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121388d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.80 +/- 0.21	0.34	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC

LIMS Version: 6.615

Page 1 of 10

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 214 g
Lab ID: 1209099-2	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121316d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.56 +/- 0.21	0.29	1	LT, TI

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 214 g
Lab ID: 1209099-2DUP	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121617d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.46 +/- 0.17	0.38	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: GSS1209099-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 186 g
Lab ID: 1209099-3	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 120911d05

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.36 +/- 0.16	0.33	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 207 g
Lab ID: 1209099-4	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121176d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.90 +/- 0.25	0.43	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC

LIMS Version: 6.615

Page 4 of 10

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 207 g
Lab ID: 1209099-4DUP	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121165d07

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.82 +/- 0.21	0.33	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: GSS1209099-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 211 g
Lab ID: 1209099-5	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121317d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.60 +/- 0.20	0.41	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC

LIMS Version: 6.615

Page 5 of 10

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 189 g
Lab ID: 1209099-6	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121177d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.78 +/- 0.27	0.58	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 215 g
Lab ID: 1209099-7	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121238d10

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.79 +/- 0.20	0.28	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC

LIMS Version: 6.615

Page 7 of 10

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 204 g
Lab ID: 1209099-8	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121369d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.63 +/- 0.21	0.43	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 205 g
Lab ID: 1209099-9	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121389d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.64 +/- 0.20	0.38	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209099
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: SO-350180-203-090612-SC	Sample Matrix: SOIL	Prep Batch: GS120910-1	Final Aliquot: 214 g
Lab ID: 1209099-10	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120910-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 06-Sep-12	Run ID: GS120910-1A	Moisture(%): NA
	Date Prepared: 10-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 02-Oct-12	Report Basis: Dry Weight	File Name: 121618d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.30 +/- 0.18	0.36	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209099-1

TECHNICAL BULLETIN ADDENDUM

The library used for analysis defines the gamma emission(s) to be used for analysis of each nuclide. If multiple gamma emissions are used for quantification, then a 'NET' quantification emission (or peak) must be defined in the library. This designation provides for the calculation of nuclide activity concentrations and detection limits in the case of non-presence of the nuclide. When the nuclide is not present, or the software is unable to resolve a peak at the library defined 'NET' energy, the software evaluates the 'NET' region of interest ('NET' peak energy ± 2 keV) by performing a summation of the net counts above the background level. This 'NET' quantification can result in net negative, zero, or positive activity results, and is highly dependent on the spectral distribution in the region of interest of the 'NET' peak. In cases where only the 'NET' peak is found, and the software performs a net quantification, the nuclide result will be flagged with an 'NQ' qualifier on the final reports. This indicates that the nuclide is not detected or supported at any level above the reported MDC. Results are submitted without further qualification.

All nuclides specified in the library of analysis for gamma spectroscopy are evaluated for positive OR tentative identification on the following criteria:

- The individual abundances for the gamma emissions specified for each nuclide are summed to obtain a total nuclide abundance.
- From the total nuclide abundance, a positive identification criterion is set as 75% of this total nuclide abundance.
- For all nuclide peaks that are not net quantified, those peak abundances are summed. The total non-net quantified peak sum is compared to the calculated 75% abundance criterion. If this sum is greater than the 75% criterion, the nuclide is considered to be positively identified at the reported concentration. If the sum is less than the 75% criterion, the nuclide is tentatively identified at the reported concentration. These results will be flagged with a 'TI' qualifier on the final reports to indicate that the 75% abundance criterion was not met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1209350

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Report Due Date: 10/20/2012

Client Sample Number	Lab Sample Number	Test Group	COC Number	Matrix	Date Collected	Time Collected
1-ERM	1209350-1	1		SOIL	18-Sep-12	10:04
2-ERM	1209350-2	1		SOIL	18-Sep-12	10:09
3-ERM	1209350-3	1		SOIL	18-Sep-12	10:15
4-ERM	1209350-4	1		SOIL	18-Sep-12	10:23
5-ERM	1209350-5	1		SOIL	18-Sep-12	10:27
1-GSG	1209350-6	1		SOIL	18-Sep-12	12:06
2-GSG	1209350-7	1		SOIL	18-Sep-12	12:11
3-GSG	1209350-8	1		SOIL	18-Sep-12	12:15
4-GSG	1209350-9	1		SOIL	18-Sep-12	12:18
5-GSG	1209350-10	1		SOIL	18-Sep-12	12:28

****Designated QC**

Analytical Methods by Test Group

Test Group: 1

Ra_226/228

SOP642

SW6020

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1209350

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1-ERM	1209350-1		SOIL	18-Sep-12	10:04
2-ERM	1209350-2		SOIL	18-Sep-12	10:09
3-ERM	1209350-3		SOIL	18-Sep-12	10:15
4-ERM	1209350-4		SOIL	18-Sep-12	10:23
5-ERM	1209350-5		SOIL	18-Sep-12	10:27
1-GSG	1209350-6		SOIL	18-Sep-12	12:06
2-GSG	1209350-7		SOIL	18-Sep-12	12:11
3-GSG	1209350-8		SOIL	18-Sep-12	12:15
4-GSG	1209350-9		SOIL	18-Sep-12	12:18
5-GSG	1209350-10		SOIL	18-Sep-12	12:28



ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
Tel: (970) 442-1511, Fax: (970) 442-1511, Fax: (970) 490-1522

Chain-of-Custody

Form 202a8

PROJECT NAME	Church Rock	SAMPLER	RAML - Harold Sims	WORKORDER #	1209350		
PROJECT NO.	SEVES 330180-203	SITE ID	Phase II	PAGE	1 of 1		
COMPANY NAME	SEVES	EDD FORMAT		DISPOSAL			
SEND REPORT TO	Daniel Liles	PURCHASE ORDER	Acct No. 816126558	By Lab or	Return to Client		
ADDRESS	3305 Valley Hwy Suite 30112	BILL TO COMPANY	SEVES Consultants, Inc				
CITY / STATE / ZIP	Englewood, CO 80112	INVOICE ATTN TO	Andrea Pett				
PHONE	303-524-1406	ADDRESS	121 Branton Dr. Unit 12				
FAX		CITY / STATE / ZIP	Richmond Hill, CT 06463				
E-MAIL	diles@sevesust.com	PHONE	905-764-9380				
		FAX					
		E-MAIL	apett@seves.ca				
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Sample	Pres.	QC
①	1-ERM	S	9-18-12	1004	1		
②	2-ERM	S	9-18-12	1009	1		
③	3-ERM	S	9-18-12	1015	1		
④	4-ERM	S	9-18-12	1023	1		
⑤	5-ERM	S	9-18-12	1027	1		
⑥	1-GSG	S	9-18-12	1206	1		
⑦	2-GSG	S	9-18-12	1211	1		
⑧	3-GSG	S	9-18-12	1215	1		
⑨	4-GSG	S	9-18-12	1218	1		
⑩	5-GSG	S	9-18-12	1228	1		

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filler

For metals or anions, please detail analytes below.

Comments:	QC PACKAGE (check below)
	<input checked="" type="checkbox"/> LEVEL I (Standard QC)
	<input type="checkbox"/> LEVEL II (Std QC + forms)
	<input type="checkbox"/> LEVEL IV (Std QC + forms + raw data)
Preservative Key:	1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	Harold Sims	Harold Sims	9/19/12	1050
RELINQUISHED BY	C Trumble	C Trumble	9-21-12	1130
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SENEC

Workorder No: 1209350

Project Manager: JK

Initials: CDT Date: 9-21-12

1. Does this project require any special handling in addition to standard ALS procedures?	YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES <input checked="" type="radio"/> NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	<input checked="" type="radio"/> YES <input checked="" type="radio"/> NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?	<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
5. Are the COC and bottle labels complete and legible?	<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)	<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES <input checked="" type="radio"/> NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	<input checked="" type="radio"/> YES <input checked="" type="radio"/> NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	<input checked="" type="radio"/> YES <input checked="" type="radio"/> NO
10. Is there sufficient sample for the requested analyses?	<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
11. Were all samples placed in the proper containers for the requested analyses?	<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
12. Are all samples within holding times for the requested analyses?	<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
13. Were all sample containers received intact? (not broken or leaking, etc.)	<input checked="" type="radio"/> YES	<input checked="" type="radio"/> NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	<input checked="" type="radio"/> YES <input checked="" type="radio"/> NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	<input checked="" type="radio"/> YES <input checked="" type="radio"/> NO
16. Were the samples shipped on ice?	YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	<input checked="" type="radio"/> YES <input checked="" type="radio"/> NO
Cooler #: <u>1</u>		
Temperature (°C): <u>Amb</u>		
No. of custody seals on cooler: <u>1</u>		
External µR/hr reading: <u>12</u>		
Background µR/hr reading: <u>11</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA (If no, see Form 008.)		

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

The custody seal was ripped off And just stuck to
An end of the tape.

If applicable, was the client contacted? YES / NO / ☒ NA Contact: _____

Date/Time: _____

Project Manager Signature / Date: _____

JK 9-21-12

1209350

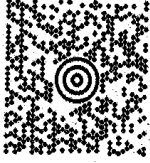
FROM:
BILLY RAY
(505) 287-8851
RIO ALGOM MINING LLC
P.O. BOX 218
GRANTS NM 87020

41 LBS

1 OF 1

SHIP TO:

ALS LABORATORY GROUP
(970) 490-1511
225 COMMERCE DRIVE
FORT COLLINS CO 80524



CO 805 0-01



UPS GROUND

TRACKING #: 1Z 875 564 03 4299 4406

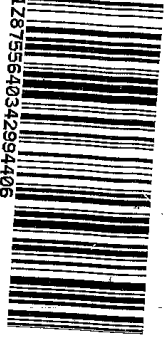


REF 1:58421

BILLING: P/P

12-10-1 completely tipped off

1Z8755640342994406



DWS ID Label



Metals Case Narrative

SENES Consultants Limited Church Rock Phase II – SENES 350180-203

Work Order Number: 1209350

1. This report consists of 10 soil samples.
2. The samples were received intact at ambient temperature by ALS on 9/21/12.
3. The samples were prepared and analyzed based on SW-846, 3rd Edition procedures.

For analysis by ICP-MS, the samples were digested following method 3050B and the current revision of SOP 806.

4. Analysis by ICP-MS followed method 6020A and the current revision of SOP 827.
5. All standards and solutions are NIST traceable and were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold times.

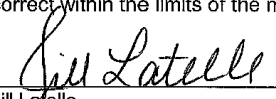
All in house quality control procedures were followed, as described below.

7. General quality control procedures.
 - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in this digestion batch.
 - The preparation (method) blank associated with this digestion batch was below the reporting limit for the requested analytes.
 - All laboratory control sample criteria were met.
 - All initial and continuing calibration blanks were below the reporting limit for the requested analytes.
 - All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes.



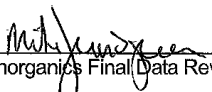
- The interference check samples associated with Method 6020A were analyzed.
8. Matrix specific quality control procedures.
- Per method requirements, matrix QC was performed for this analysis. Since a sample from this order number was not the selected quality control (QC) sample, matrix specific QC results are not included in this report.
9. All samples were analyzed at a dilution in order to protect the ICP-MS from the high metal content of the samples.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Jill Latelle
Inorganics Primary Data Reviewer

10-4-12
Date



Mike Anderson
Inorganics Final Data Reviewer

10/4/12
Date



Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- Result qualifier -- If the analyte was analyzed for but not detected a "U" is entered.
- QC qualifier -- Specified entries and their meanings are as follows:
 - E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 - M - Duplicate injection precision was not met.
 - N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 - Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 - * - Duplicate analysis (relative percent difference) not within control limits.
 - S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1209350

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1-ERM	1209350-1		SOIL	18-Sep-12	10:04
2-ERM	1209350-2		SOIL	18-Sep-12	10:09
3-ERM	1209350-3		SOIL	18-Sep-12	10:15
4-ERM	1209350-4		SOIL	18-Sep-12	10:23
5-ERM	1209350-5		SOIL	18-Sep-12	10:27
1-GSG	1209350-6		SOIL	18-Sep-12	12:06
2-GSG	1209350-7		SOIL	18-Sep-12	12:11
3-GSG	1209350-8		SOIL	18-Sep-12	12:15
4-GSG	1209350-9		SOIL	18-Sep-12	12:18
5-GSG	1209350-10		SOIL	18-Sep-12	12:28



ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1611 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 20278

PROJECT NAME Church Rock		SAMPLER RAML - Harold Sim		DATE 9-18-2012		PAGE 1 of 1		WORKORDER # 1209350							
PROJECT NO. SENES 350180-203		SITE ID Phase II		TURNAROUND 30 day		DISPOSAL		By Lab or Return to Client							
COMPANY NAME SENES		EDD FORMAT													
PURCHASE ORDER Acct No. 916126858															
BILL TO COMPANY SENES Consultants, Inc.															
INVOICE ATTN TO Andrea Pett															
ADDRESS 8310 S. Valley Hwy. Suite 301K															
CITY / STATE / ZIP Englewood, CO 80112															
PHONE 303-524-1406															
FAX															
E-MAIL Aliles@SENESUGA.COM															
Lab ID		Field ID		Matrix		Sample Date		Sample Time		# Sample		Pres.		QC	
①		1-ERM		S		9-18-12		1004		1				X	
②		2-ERM		S		9-18-12		1009		1				X	
③		3-ERM		S		9-18-12		1015		1				X	
④		4-ERM		S		9-18-12		1023		1				X	
⑤		5-ERM		S		9-18-12		1027		1				X	
⑥		1-GSG		S		9-18-12		1206		1				X	
⑦		2-GSG		S		9-18-12		1211		1				X	
⑧		3-GSG		S		9-18-12		1215		1				X	
⑨		4-GSG		S		9-18-12		1218		1				X	
⑩		5-GSG		S		9-18-12		1228		1				X	
na Zone (Circle):		EST CST MST PST		Matrix: O = oil (S = soil)		NS = non-soil solid W = water L = liquid E = extract F = filter									
r metals or anions, please detail analytes below.															
mments:															
QC PACKAGE (check below)		X		LEVEL II (Standard QC)											
				LEVEL III (Std QC + forms)											
				LEVEL IV (Std QC + forms + raw data)											
5 of 11															
servative Key:		1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035													
RELINQUISHED BY		RECEIVED BY		SIGNATURE		PRINTED NAME		DATE		TIME					
RELINQUISHED BY		RECEIVED BY		SIGNATURE		PRINTED NAME		DATE		TIME					
RELINQUISHED BY		RECEIVED BY		SIGNATURE		PRINTED NAME		DATE		TIME					
RELINQUISHED BY		RECEIVED BY		SIGNATURE		PRINTED NAME		DATE		TIME					



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SEAES

Workorder No: 1209350

Project Manager: JK

Initials: CDT Date: 9-21-12

1. Does this project require any special handling in addition to standard ALS procedures?	YES	<u>(NO)</u>
2. Are custody seals on shipping containers intact?	NONE	YES <u>(NO)</u>
3. Are Custody seals on sample containers intact?	<u>(NONE)</u>	YES NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?	<u>(YES)</u>	YES NO
5. Are the COC and bottle labels complete and legible?	<u>(YES)</u>	YES NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)	<u>(YES)</u>	YES NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<u>(YES)</u> NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<u>(N/A)</u>	YES NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>(N/A)</u>	YES NO
10. Is there sufficient sample for the requested analyses?	<u>(YES)</u>	YES NO
11. Were all samples placed in the proper containers for the requested analyses?	<u>(YES)</u>	YES NO
12. Are all samples within holding times for the requested analyses?	<u>(YES)</u>	YES NO
13. Were all sample containers received intact? (not broken or leaking, etc.)	<u>(YES)</u>	YES NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<u>(N/A)</u>	YES NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<u>(N/A)</u>	YES NO
16. Were the samples shipped on ice?	YES	<u>(NO)</u>
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4 RAD ONLY	YES	<u>(NO)</u>
Cooler #: <u>1</u>		
Temperature (°C): <u>Amb</u>		
No. of custody seals on cooler: <u>1</u>		
External µR/hr reading: <u>12</u>		
Background µR/hr reading: <u>11</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>(YES)</u> NO / NA (If no, see Form 008.)		

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

The custody seal was ripped off and just stuck to
an end of the tape.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 9-21-12

1209350

FROM: BILLY RAY (505) 287-8851 RIO ALGOM MINING LLC P.O. BOX 218 GRANTS NM 87020		41 LBS	1 OF 1
SHIP TO: ALS LABORATORY GROUP (970) 490-1511 225 COMMERCE DRIVE FORT COLLINS CO 80524			
		CO 805 0-01 	
 UPS GROUND TRACKING #: 1Z 875 564 03 4299 4406			
REF 1:58421		BILLING: P/P	

Handwritten: 12-10-1 complete



DWS ID Label

Total THORIUM
Method SW6020 Revision A
Sample Results

Lab Name: ALS Environmental -- FC
Client Name: SENES Consultants Limited
Client Project ID: Church Rock Phase II SENES 350180-203
Work Order Number: 1209350 Final Volume: 100 ml
Reporting Basis: Dry Weight Matrix: SOIL
Prep Method: SW3050B Result Units: UG/KG
Analyst: Ross Miller

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
1-ERM	1209350-1	09/18/2012	09/25/2012	09/27/2012	9.0	50	7400	110		1.004 g
2-ERM	1209350-2	09/18/2012	09/25/2012	09/27/2012	5.8	50	5800	100		1.038 g
3-ERM	1209350-3	09/18/2012	09/25/2012	09/27/2012	5.5	50	5400	100		1.022 g
4-ERM	1209350-4	09/18/2012	09/25/2012	09/27/2012	10.4	50	6800	110		1.022 g
5-ERM	1209350-5	09/18/2012	09/25/2012	09/27/2012	11.0	50	8200	110		1.002 g
1-GSG	1209350-6	09/18/2012	09/25/2012	09/27/2012	3.4	50	950	100		1.026 g
2-GSG	1209350-7	09/18/2012	09/25/2012	09/27/2012	4.6	50	800	100		1.012 g
3-GSG	1209350-8	09/18/2012	09/25/2012	09/27/2012	4.1	50	870	100		1.014 g
4-GSG	1209350-9	09/18/2012	09/25/2012	09/27/2012	4.1	50	840	100		1.019 g
5-GSG	1209350-10	09/18/2012	09/25/2012	09/27/2012	4.7	50	720	100		1.009 g

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *im1209350-1*

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC
LIMS Version: 6.615

Page 1 of 2

Total URANIUM
Method SW6020 Revision A
Sample Results

Lab Name: ALS Environmental -- FC
Client Name: SENES Consultants Limited
Client Project ID: Church Rock Phase II SENES 350180-203
Work Order Number: 1209350 Final Volume: 100 ml
Reporting Basis: Dry Weight Matrix: SOIL
Prep Method: SW3050B Result Units: UG/KG
Analyst: Ross Miller

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
1-ERM	1209350-1	09/18/2012	09/25/2012	09/27/2012	9.0	50	1500	55		1.004 g
2-ERM	1209350-2	09/18/2012	09/25/2012	09/27/2012	5.8	50	690	51		1.038 g
3-ERM	1209350-3	09/18/2012	09/25/2012	09/27/2012	5.5	50	650	52		1.022 g
4-ERM	1209350-4	09/18/2012	09/25/2012	09/27/2012	10.4	50	1000	55		1.022 g
5-ERM	1209350-5	09/18/2012	09/25/2012	09/27/2012	11.0	50	1100	56		1.002 g
1-GSG	1209350-6	09/18/2012	09/25/2012	09/27/2012	3.4	50	860	50		1.026 g
2-GSG	1209350-7	09/18/2012	09/25/2012	09/27/2012	4.6	50	920	52		1.012 g
3-GSG	1209350-8	09/18/2012	09/25/2012	09/27/2012	4.1	50	850	51		1.014 g
4-GSG	1209350-9	09/18/2012	09/25/2012	09/27/2012	4.1	50	950	51		1.019 g
5-GSG	1209350-10	09/18/2012	09/25/2012	09/27/2012	4.7	50	690	52		1.009 g

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *im1209350-1*

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC
LIMS Version: 6.615

Page 2 of 2

ICPMS Metals

Method SW6020A

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1209350

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: IP120925-9MB

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 25-Sep-12

Date Analyzed: 27-Sep-12

Prep Method: SW3050 Rev B

Prep Batch: IP120925-9

QC Batch ID: IP120925-9-3

Run ID: IM120927-11A1

Cleanup: NONE

Basis: N/A

File Name: 030SMPL.

Sample Aliquot: 1 g

Final Volume: 100 ml

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-29-1	THORIUM	10	20	20	U	
7440-61-1	URANIUM	10	10	10	U	

Data Package ID: *im1209350-1*

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC

LIMS Version: 6.615

Page 1 of 1

ICPMS Metals

Method SW6020A

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1209350

Client Name: SENES Consultants Limited

ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: IM120925-9LCS

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09/25/2012

Date Analyzed: 09/27/2012

Prep Method: SW3050B

Prep Batch: IP120925-9

QCBatchID: IP120925-9-3

Run ID: IM120927-11A1

Cleanup: NONE

Basis: N/A

File Name: 031SMPL.

Sample Aliquot: 1 g

Final Volume: 100 ml

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
7440-29-1	THORIUM	1000	1070	20		107	80 - 120%
7440-61-1	URANIUM	1000	1060	10		106	80 - 120%

Data Package ID: *im1209350-1*

Date Printed: Thursday, October 04, 2012

ALS Environmental -- FC

LIMS Version: 6.615

Page 1 of 1



Gamma Spectroscopy Case Narrative

SENES Consultants Limited Church Rock Phase II – SENES 350180-203

Work Order Number: 1209350

1. The following report consists of analytical results for 10 soil samples received by ALS on 09/21/2012.
2. These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans on 09/23/2012 and stored for at least 22 days to allow ^{222}Rn to approach secular equilibrium with its parent, ^{226}Ra . The degree of in-growth achieved prior to analysis on 10/15/2012 is at least 98.15%. Conservatively assuming a radon emanation efficiency of approximately 50%, the effective radon progeny in-growth for these samples would be greater than 99.07%.
3. The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713. The analyses were completed on 10/15/2012.
4. The results for these samples are reported on a "Dry Weight" basis in units of pCi/gram.
5. Sample volumes were insufficient to allow preparation of a duplicate. A duplicate analysis of sample 1209350-4 was performed in lieu of a prepared duplicate.
6. ALS has observed a reproducible low bias in ^{226}Ra results (about -30% for the geometry in question) when using a mixed gamma source for the calibration of HPGe detectors for solid samples. This bias is eliminated by calibration using a NIST traceable ^{226}Ra source in the same geometry and configuration as the samples.
7. The library used for calibration and analysis employs multiple peaks for the ^{226}Ra progeny, ^{214}Pb (352 and 295 keV) and ^{214}Bi (609 and 1120 keV). Using these peaks avoids the use of the problematic ^{226}Ra photo-peak at 186 keV, which suffers from poorly resolvable interference from ^{235}U at the same energy. Final activity results for ^{226}Ra are calculated, using the uncertainty-weighted mean of the activities for the four photo-peaks, by the Seeker gamma spectroscopy software assuming secular equilibrium.



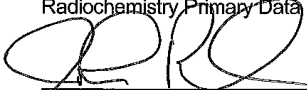
8. There are cases where the sample density is less than the associated calibration standard density. Cases that exceed the limit of $\pm 15\%$ of the density of the calibration standard are flagged with a 'G', denoting a significant density difference between the sample and calibration standard. Consequently, the results may be biased high for the flagged results in this work order. If requested, ALS can perform a transmission spike in order to estimate a magnitude of this bias. The results are reported without further qualification.
9. No further problems were encountered with either the client samples or the associated quality control samples. All remaining quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Linda Arend
Radiochemistry Primary Data Reviewer

10/18/12
Date



Radiochemistry Final Data Reviewer

10/18/12
Date

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1209350

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1-ERM	1209350-1		SOIL	18-Sep-12	10:04
2-ERM	1209350-2		SOIL	18-Sep-12	10:09
3-ERM	1209350-3		SOIL	18-Sep-12	10:15
4-ERM	1209350-4		SOIL	18-Sep-12	10:23
5-ERM	1209350-5		SOIL	18-Sep-12	10:27
1-GSG	1209350-6		SOIL	18-Sep-12	12:06
2-GSG	1209350-7		SOIL	18-Sep-12	12:11
3-GSG	1209350-8		SOIL	18-Sep-12	12:15
4-GSG	1209350-9		SOIL	18-Sep-12	12:18
5-GSG	1209350-10		SOIL	18-Sep-12	12:28



ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1611 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 20278

PROJECT NAME Church Rock		SAMPLER RAML - Harold Sim		DATE 9-18-2012		PAGE 1 of 1		WORKORDER # 1209350	
PROJECT NO. SENES 350180-203		SITE ID Phase II		TURNAROUND 30 day		DISPOSAL By Lab or Return to Client			
COMPANY NAME SENES		EDD FORMAT Asst No. 916126858							
END REPORT TO SENES		PURCHASE ORDER SENES Consultants, Inc.							
ADDRESS Darrel Liles		BILL TO COMPANY SENES Consultants, Inc.							
ADDRESS 8310 S. Valley Hwy. Suite 301K		INVOICE ATTN TO Andrea Pett							
CITY / STATE / ZIP Englewood, CO 80112		ADDRESS 121 Granton Dr. Unit 12							
PHONE 303-524-1406		CITY / STATE / ZIP Richmond Hill, OT 44834							
FAX 303-524-1406		PHONE 905-764-9380							
E-MAIL Liles@SENESUGA.COM		FAX 							
E-MAIL Liles@SENESUGA.COM		E-MAIL apett@SENES.CA							
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Sample	Pres.	QC		
①	1-ERM	S	9-18-12	1004	1				
②	2-ERM	S	9-18-12	1009	1				
③	3-ERM	S	9-18-12	1015	1				
④	4-ERM	S	9-18-12	1023	1				
⑤	5-ERM	S	9-18-12	1027	1				
⑥	1-GSG	S	9-18-12	1206	1				
⑦	2-GSG	S	9-18-12	1211	1				
⑧	3-GSG	S	9-18-12	1215	1				
⑨	4-GSG	S	9-18-12	1218	1				
⑩	5-GSG	S	9-18-12	1228	1				
ne Zone (Circle): EST CST MST PST Matrix: O = oil (S = soil) NS = non-soil solid W = water L = liquid E = extract F = filter									
r metals or anions, please detail analytes below.									
mments:									
QC PACKAGE (check below)									
X LEVEL II (Standard QC)									
LEVEL III (Std QC + forms)									
LEVEL IV (Std QC + forms + raw data)									
Sensitivity Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035									
RELINQUISHED BY: Harold Sim SIGNED BY: Harold Sim DATE: 9/19/12 TIME: 1050									
RECEIVED BY: C Trumble DATE: 9-21-12 TIME: 1130									
RELINQUISHED BY:									
RECEIVED BY:									
RELINQUISHED BY:									
RECEIVED BY:									



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SEAES

Workorder No: 1209350

Project Manager: JK

Initials: CDT Date: 9-21-12

1. Does this project require any special handling in addition to standard ALS procedures?	YES	<u>(NO)</u>
2. Are custody seals on shipping containers intact?	NONE	YES <u>(NO)</u>
3. Are Custody seals on sample containers intact?	<u>(NONE)</u>	YES NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?	<u>(YES)</u>	YES NO
5. Are the COC and bottle labels complete and legible?	<u>(YES)</u>	YES NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)	<u>(YES)</u>	YES NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<u>(YES)</u> NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<u>(N/A)</u>	YES NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>(N/A)</u>	YES NO
10. Is there sufficient sample for the requested analyses?	<u>(YES)</u>	YES NO
11. Were all samples placed in the proper containers for the requested analyses?	<u>(YES)</u>	YES NO
12. Are all samples within holding times for the requested analyses?	<u>(YES)</u>	YES NO
13. Were all sample containers received intact? (not broken or leaking, etc.)	<u>(YES)</u>	YES NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<u>(N/A)</u>	YES NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<u>(N/A)</u>	YES NO
16. Were the samples shipped on ice?	YES	<u>(NO)</u>
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4 RAD ONLY	YES	<u>(NO)</u>
Cooler #: <u>1</u>		
Temperature (°C): <u>Amb</u>		
No. of custody seals on cooler: <u>1</u>		
External µR/hr reading: <u>12</u>		
Background µR/hr reading: <u>11</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>(YES)</u> NO / NA (If no, see Form 008.)		

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

The custody seal was ripped off and just stuck to
an end of the tape.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 9-21-12

1209350

FROM: BILLY RAY (505) 287-8851 RIO ALGOM MINING LLC P.O. BOX 218 GRANTS NM 87020		41 LBS	1 OF 1
SHIP TO: ALS LABORATORY GROUP (970) 490-1511 225 COMMERCE DRIVE FORT COLLINS CO 80524			
		CO 805 0-01 	
UPS GROUND TRACKING #: 1Z 875 564 03 4299 4406			
			
REF 1:58421		BILLING: P/P	

12-10-
1 complete



DWS ID Label

Gamma Spectroscopy Results

PAI 713 Rev 12

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: GS120922-1MB	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 10 Date Collected: 23-Sep-12 Date Prepared: 23-Sep-12 Date Analyzed: 15-Oct-12	Prep Batch: GS120922-1 QCBatchID: GS120922-1-1 Run ID: GS120922-1A Count Time: 30 minutes	Final Aliquot: 215 g Result Units: pCi/g File Name: 121748d04
Library: RA226.LIB			

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.10 +/- 0.17	0.28	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: GSS1209350-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Lab ID: GS120922-1LCS	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 10 Date Collected: 23-Sep-12 Date Prepared: 23-Sep-12 Date Analyzed: 15-Oct-12	Prep Batch: GS120922-1 QCBatchID: GS120922-1-1 Run ID: GS120922-1A Count Time: 30 minutes	Final Aliquot: 215 g Result Units: pCi/g File Name: 121006d05
Library: RA226.LIB			

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	452 +/- 53	2	469.5	96.2	85 - 115	P,M3

Comments:

Qualifiers/Flags: U - Result is less than the sample specific MDC or less than the associated TPU. LT - Result is less than Requested MDC, greater than sample specific MDC. Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed. Y2 - Chemical Yield outside default limits. L - LCS Recovery below lower control limit. H - LCS Recovery above upper control limit. P - LCS Recovery within control limits. M - The requested MDC was not met. M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.	Abbreviations: TPU - Total Propagated Uncertainty MDC - Minimum Detectable Concentration SQ - Spectral quality prevents accurate quantitation. SI - Nuclide identification and/or quantitation is tentative. TI - Nuclide identification is tentative. R - Nuclide has exceeded 8 halflives.
--	---

Data Package ID: GSS1209350-1

Date Printed: Thursday, October 18, 2012

ALS Environmental -- FC

LIMS Version: 6.618

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 12

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 4-ERM	Sample Matrix: SOIL	Prep Batch: GS120922-1	Final Aliquot: 168 g
Lab ID: 1209350-4DUP	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120922-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 18-Sep-12	Run ID: GS120922-1A	Moisture(%): NA
	Date Prepared: 23-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 15-Oct-12	Report Basis: Dry Weight	File Name: 121455d01

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	1.68 +/- 0.33	0.41	G	2.03 +/- 0.42	0.62	G	0.663	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209350-1

Date Printed: Thursday, October 18, 2012

ALS Environmental -- FC

LIMS Version: 6.618

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 1-ERM	Sample Matrix: SOIL	Prep Batch: GS120922-1	Final Aliquot: 162 g
Lab ID: 1209350-1	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120922-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 18-Sep-12	Run ID: GS120922-1A	Moisture(%): NA
	Date Prepared: 23-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 15-Oct-12	Report Basis: Dry Weight	File Name: 121454d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.69 +/- 0.38	0.57	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209350-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 2-ERM	Sample Matrix: SOIL	Prep Batch: GS120922-1	Final Aliquot: 183 g
Lab ID: 1209350-2	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120922-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 18-Sep-12	Run ID: GS120922-1A	Moisture(%): NA
	Date Prepared: 23-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 15-Oct-12	Report Basis: Dry Weight	File Name: 121477d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.03 +/- 0.27	0.48	1	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209350-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 3-ERM	Sample Matrix: SOIL	Prep Batch: GS120922-1	Final Aliquot: 179 g
Lab ID: 1209350-3	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120922-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 18-Sep-12	Run ID: GS120922-1A	Moisture(%): NA
	Date Prepared: 23-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 15-Oct-12	Report Basis: Dry Weight	File Name: 121746d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.34 +/- 0.32	0.50	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209350-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 4-ERM	Sample Matrix: SOIL	Prep Batch: GS120922-1	Final Aliquot: 168 g
Lab ID: 1209350-4	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120922-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 18-Sep-12	Run ID: GS120922-1A	Moisture(%): NA
	Date Prepared: 23-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 15-Oct-12	Report Basis: Dry Weight	File Name: 121004d05

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.68 +/- 0.33	0.41	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209350-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 4-ERM
Lab ID: 1209350-4DUP

Library: RA226.LIB

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 10

Date Collected: 18-Sep-12

Date Prepared: 23-Sep-12

Date Analyzed: 15-Oct-12

Prep Batch: GS120922-1

QCBatchID: GS120922-1-1

Run ID: GS120922-1A

Count Time: 30 minutes

Report Basis: Dry Weight

Final Aliquot: 168 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

File Name: 121455d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	2.03 +/- 0.42	0.62	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: GSS1209350-1

Date Printed: Thursday, October 18, 2012

ALS Environmental -- FC

LIMS Version: 6.618

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 5-ERM	Sample Matrix: SOIL	Prep Batch: GS120922-1	Final Aliquot: 156 g
Lab ID: 1209350-5	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120922-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 18-Sep-12	Run ID: GS120922-1A	Moisture(%): NA
	Date Prepared: 23-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 15-Oct-12	Report Basis: Dry Weight	File Name: 121478d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.01 +/- 0.30	0.61	1	G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209350-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 1-GSG	Sample Matrix: SOIL	Prep Batch: GS120922-1	Final Aliquot: 213 g
Lab ID: 1209350-6	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120922-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 18-Sep-12	Run ID: GS120922-1A	Moisture(%): NA
	Date Prepared: 23-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 15-Oct-12	Report Basis: Dry Weight	File Name: 121747d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.55 +/- 0.24	0.43	1	LT,TI

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209350-1

Date Printed: Thursday, October 18, 2012

ALS Environmental -- FC

LIMS Version: 6.618

Page 6 of 10

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 2-GSG	Sample Matrix: SOIL	Prep Batch: GS120922-1	Final Aliquot: 187 g
Lab ID: 1209350-7	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120922-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 18-Sep-12	Run ID: GS120922-1A	Moisture(%): NA
	Date Prepared: 23-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 15-Oct-12	Report Basis: Dry Weight	File Name: 121005d05

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.76 +/- 0.21	0.33	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209350-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 3-GSG	Sample Matrix: SOIL	Prep Batch: GS120922-1	Final Aliquot: 193 g
Lab ID: 1209350-8	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120922-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 18-Sep-12	Run ID: GS120922-1A	Moisture(%): NA
	Date Prepared: 23-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 15-Oct-12	Report Basis: Dry Weight	File Name: 121248d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.61 +/- 0.24	0.52	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209350-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 4-GSG	Sample Matrix: SOIL	Prep Batch: GS120922-1	Final Aliquot: 198 g
Lab ID: 1209350-9	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120922-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 18-Sep-12	Run ID: GS120922-1A	Moisture(%): NA
	Date Prepared: 23-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 15-Oct-12	Report Basis: Dry Weight	File Name: 121456d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.69 +/- 0.22	0.46	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209350-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1209350
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203

Field ID: 5-GSG	Sample Matrix: SOIL	Prep Batch: GS120922-1	Final Aliquot: 186 g
Lab ID: 1209350-10	Prep SOP: PAI 739 Rev 10	QCBatchID: GS120922-1-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 18-Sep-12	Run ID: GS120922-1A	Moisture(%): NA
	Date Prepared: 23-Sep-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 15-Oct-12	Report Basis: Dry Weight	File Name: 121479d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.54 +/- 0.21	0.40	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1209350-1

TECHNICAL BULLETIN ADDENDUM

The library used for analysis defines the gamma emission(s) to be used for analysis of each nuclide. If multiple gamma emissions are used for quantification, then a 'NET' quantification emission (or peak) must be defined in the library. This designation provides for the calculation of nuclide activity concentrations and detection limits in the case of non-presence of the nuclide. When the nuclide is not present, or the software is unable to resolve a peak at the library defined 'NET' energy, the software evaluates the 'NET' region of interest ('NET' peak energy ± 2 keV) by performing a summation of the net counts above the background level. This 'NET' quantification can result in net negative, zero, or positive activity results, and is highly dependent on the spectral distribution in the region of interest of the 'NET' peak. In cases where only the 'NET' peak is found, and the software performs a net quantification, the nuclide result will be flagged with an 'NQ' qualifier on the final reports. This indicates that the nuclide is not detected or supported at any level above the reported MDC. Results are submitted without further qualification.

All nuclides specified in the library of analysis for gamma spectroscopy are evaluated for positive OR tentative identification on the following criteria:

- The individual abundances for the gamma emissions specified for each nuclide are summed to obtain a total nuclide abundance.
- From the total nuclide abundance, a positive identification criterion is set as 75% of this total nuclide abundance.
- For all nuclide peaks that are not net quantified, those peak abundances are summed. The total non-net quantified peak sum is compared to the calculated 75% abundance criterion. If this sum is greater than the 75% criterion, the nuclide is considered to be positively identified at the reported concentration. If the sum is less than the 75% criterion, the nuclide is tentatively identified at the reported concentration. These results will be flagged with a 'TI' qualifier on the final reports to indicate that the 75% abundance criterion was not met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1210098

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203 (200)

Client PO Number: Account Number 816126858

Report Due Date: 10/20/2012

Client Sample Number	Lab Sample Number	Test Group	COC Number	Matrix	Date Collected	Time Collected
001-GSG-1inch	1210098-1	4		SOLID	05-Oct-12	11:15
002-GSG-RB	1210098-2	4		SOLID	05-Oct-12	11:22
003-GSG-RB	1210098-3	4		SOLID	05-Oct-12	11:25

****Designated QC**

Analytical Methods by Test Group

Test Group: 4

Ra_226/228

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1210098

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203 (200)

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
001-GSG-1inch	1210098-1		SOLID	05-Oct-12	11:15
002-GSG-RB	1210098-2		SOLID	05-Oct-12	11:22
003-GSG-RB	1210098-3		SOLID	05-Oct-12	11:25



Form 202r8

[illegible]



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client:

Senes

Workorder No:

1210098

Project Manager:

JRK

Initials:

LAS

Date:

10/8/12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<input checked="" type="radio"/> RAD ONLY	YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>AMUB</u>			
No. of custody seals on cooler: <u>1</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO ☒ NA Contact:

Date/Time:

Project Manager Signature / Date:

[Signature] 10-8-12

17 of 100
61221830
083100 P1
20776



UPS Next Day Air®
UPS Worldwide Express®
Shipping Document

WEIGHT	23 24/13 13	DIMENSIONAL WEIGHT		LARGE PACKAGE	<input type="checkbox"/>	SHIPPER RELEASE	<input type="checkbox"/>
--------	-------------	--------------------	--	---------------	--------------------------	-----------------	--------------------------

1210098

SATURDAY DELIVERY

SHIPMENT FROM	UPS ACCOUNT NO.	816126858	REFERENCE NUMBER	
---------------	-----------------	-----------	------------------	--

Darrell Libs 303-717-3257

SENES

8310 S Valley Hwy Suite 3014

Englewood CO 80112

DELIVERY TO	TELEPHONE
-------------	-----------

1

ALS Laboratory Group
225 Commerce Drive
Fort Collins Colorado 80524

010191720 1107 S United Parcel Service, Louisville, KY

EXPRESS (INTL)	<input type="checkbox"/>	DOCUMENTS ONLY	<input type="checkbox"/>
----------------	--------------------------	----------------	--------------------------

J214 684 617 9



J214 684 617 9

12
-1
105

UPS Next Day Air®

J214 684 617 9



J214 684 617 9

DATE OF SHIPMENT

10/5/12



Gamma Spectroscopy Case Narrative

SENES Consultants Limited

Church Rock Phase II – SENES 350180-203 (200)

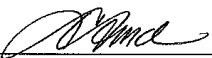
Work Order Number: 1210098

1. The following report consists of analytical results for three solid samples received by ALS on 10/08/2012.
2. These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans on 10/09/2012 and stored for at least 21 days to allow ^{222}Rn to approach secular equilibrium with its parent, ^{226}Ra . The degree of in-growth achieved prior to analysis on 10/30/2012 is at least 97.8%. Conservatively assuming a radon emanation efficiency of approximately 50%, the effective radon progeny in-growth for these samples would be greater than 98.9%.
3. The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713. The analyses were completed on 10/30/2012.
4. The results for these samples are reported on a "Dry Weight" basis in units of pCi/gram.
5. Sample volumes were insufficient to allow preparation of a duplicate. A duplicate analysis of sample 1210098-1 was performed in lieu of a prepared duplicate.
6. ALS has observed a reproducible low bias in ^{226}Ra results (about -30% for the geometry in question) when using a mixed gamma source for the calibration of HPGe detectors for solid samples. This bias is eliminated by calibration using a NIST traceable ^{226}Ra source in the same geometry and configuration as the samples.
7. The library used for calibration and analysis employs multiple peaks for the ^{226}Ra progeny, ^{214}Pb (352 and 295 keV) and ^{214}Bi (609 and 1120 keV). Using these peaks avoids the use of the problematic ^{226}Ra photo-peak at 186 keV, which suffers from poorly resolvable interference from ^{235}U at the same energy. Final activity results for ^{226}Ra are calculated, using the uncertainty-weighted mean of the activities for the four photo-peaks, by the Seeker gamma spectroscopy software assuming secular equilibrium.



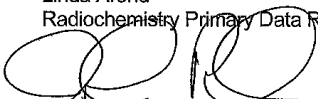
8. No problems were encountered with either the client samples or the associated quality control samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Linda Arend
Radiochemistry Primary Data Reviewer

11-02-12
Date



Radiochemistry Final Data Reviewer

11/02/12
Date

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1210098

Client Name: SENES Consultants Limited

Client Project Name: Church Rock Phase II

Client Project Number: SENES 350180-203 (200)

Client PO Number: Account Number 816126858

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
001-GSG-1inch	1210098-1		SOLID	05-Oct-12	11:15
002-GSG-RB	1210098-2		SOLID	05-Oct-12	11:22
003-GSG-RB	1210098-3		SOLID	05-Oct-12	11:25



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Senes

Workorder No: 1210098

Project Manager: JRK

Initials: LAS Date: 10/8/12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	<input checked="" type="radio"/> RAD ONLY	YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>AMB</u>			
No. of custody seals on cooler: <u>1</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria: <input checked="" type="radio"/> YES / <input type="radio"/> NO / <input type="radio"/> NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO ☒ Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 10-8-12

WEIGHT	2.3	DIMENSIONAL WEIGHT	13	LARGE PACKAGE	<input type="checkbox"/>	SHIPPER RELEASE	<input type="checkbox"/>
1210098				EXPRESS (INTL)	<input type="checkbox"/>	<small>The shipper certifies that the contents are not hazardous materials, and that the package is properly labeled, packaged, and secured for shipment. The shipper certifies that the package is not a restricted article, and that the package is not a restricted article, and that the package is not a restricted article.</small>	
SATURDAY DELIVERY				DOCUMENTS ONLY	<input type="checkbox"/>		

1214 684 617 9

1214 684 617 9

12-1-10

105

UPS Next Day Air® 1

UPS Next Day Air®
UPS Worldwide Express®
Shipping Document

SHIPMENT FROM
UPS ACCOUNT NO. 816126858
REFERENCE NUMBER

TELEPHONE 303-717-3257

Darrell L. Lee

SFMS

8310 S valley Hwy Suite 3014

Englewood CO 80112

DELIVERY TO

ALB Laboratory Group

225 Commerce Drive

Fort Collins Colorado 80524

1214 684 617 9

1214 684 617 9

DATE OF SHIPMENT
10/5/12

United Parcel Service, Louisville, KY

010191120 1/07 S

Gamma Spectroscopy Results

PAI 713 Rev 12

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: GS121011-2MB	Sample Matrix: SOLID	Prep Batch: GS121011-2	Final Aliquot: 215 g
Library: RA226.LIB	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121011-2-1	Result Units: pCi/g
	Date Collected: 09-Oct-12	Run ID: GS121011-2A	File Name: 121827d04
	Date Prepared: 09-Oct-12	Count Time: 30 minutes	
	Date Analyzed: 30-Oct-12		

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.09 +/- 0.22	0.38	1	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.
SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Data Package ID: GSS1210098-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1210098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Lab ID: GS121011-2LCS	Sample Matrix: SOLID	Prep Batch: GS121011-2	Final Aliquot: 215 g
Library: RA226.LIB	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121011-2-1	Result Units: pCi/g
	Date Collected: 09-Oct-12	Run ID: GS121011-2A	File Name: 121330d07
	Date Prepared: 09-Oct-12	Count Time: 30 minutes	
	Date Analyzed: 30-Oct-12		

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	452 +/- 53	2	469.5	96.4	85 - 115	P,M3

Comments:

Qualifiers/Flags:	Abbreviations:
U - Result is less than the sample specific MDC or less than the associated TPU.	TPU - Total Propagated Uncertainty
LT - Result is less than Requested MDC, greater than sample specific MDC.	MDC - Minimum Detectable Concentration
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.	
Y2 - Chemical Yield outside default limits.	SQ - Spectral quality prevents accurate quantitation.
L - LCS Recovery below lower control limit.	SI - Nuclide identification and/or quantitation is tentative.
H - LCS Recovery above upper control limit.	TI - Nuclide identification is tentative.
P - LCS Recovery within control limits.	R - Nuclide has exceeded 8 half-lives.
M - The requested MDC was not met.	
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.	

Data Package ID: GSS1210098-1

Date Printed: Friday, November 02, 2012

ALS Environmental -- FC

LIMS Version: 6.618

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 12

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1210098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: 001-GSG-1inch
Lab ID: 1210098-1DUP

Library: RA226.LIB

Sample Matrix: SOLID
Prep SOP: PAI 739 Rev 10
Date Collected: 05-Oct-12
Date Prepared: 09-Oct-12
Date Analyzed: 30-Oct-12

Prep Batch: GS121011-2
QCBatchID: GS121011-2-1
Run ID: GS121011-2A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 234 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 121140d05

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	0.56 +/- 0.18	0.28	LT	0.76 +/- 0.18	0.25	LT	0.771	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

SQ - Spectral quality prevents accurate quantitation.
SI - Nuclide identification and/or quantitation is tentative.
TI - Nuclide identification is tentative.
R - Nuclide has exceeded 8 half-lives.
G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1210098-1

Date Printed: Friday, November 02, 2012

ALS Environmental -- FC

LIMS Version: 6.618

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: 001-GSG-1inch	Sample Matrix: SOLID	Prep Batch: GS121011-2	Final Aliquot: 234 g
Lab ID: 1210098-1	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121011-2-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 05-Oct-12	Run ID: GS121011-2A	Moisture(%): NA
	Date Prepared: 09-Oct-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Oct-12	Report Basis: Dry Weight	File Name: 121826d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.56 +/- 0.18	0.28	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1210098-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: 001-GSG-1inch
Lab ID: 1210098-1DUP

Library: RA226.LIB

Sample Matrix: SOLID
Prep SOP: PAI 739 Rev 10

Date Collected: 05-Oct-12

Date Prepared: 09-Oct-12

Date Analyzed: 30-Oct-12

Prep Batch: GS121011-2

QCBatchID: GS121011-2-1

Run ID: GS121011-2A

Count Time: 30 minutes

Report Basis: Dry Weight

Final Aliquot: 234 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

File Name: 121140d05

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.76 +/- 0.18	0.25	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: GSS1210098-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: 002-GSG-RB	Sample Matrix: SOLID	Prep Batch: GS121011-2	Final Aliquot: 247 g
Lab ID: 1210098-2	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121011-2-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 05-Oct-12	Run ID: GS121011-2A	Moisture(%): NA
	Date Prepared: 09-Oct-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Oct-12	Report Basis: Dry Weight	File Name: 121139d05

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	1.00 +/- 0.20	0.25	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1210098-1

Gamma Spectroscopy Results

PAI 713 Rev 12

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1210098
Client Name: SENES Consultants Limited
ClientProject ID: Church Rock Phase II SENES 350180-203 (200)

Field ID: 003-GSG-RB	Sample Matrix: SOLID	Prep Batch: GS121011-2	Final Aliquot: 230 g
Lab ID: 1210098-3	Prep SOP: PAI 739 Rev 10	QCBatchID: GS121011-2-1	Prep Basis: Dry Weight
Library: RA226.LIB	Date Collected: 05-Oct-12	Run ID: GS121011-2A	Moisture(%): NA
	Date Prepared: 09-Oct-12	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 30-Oct-12	Report Basis: Dry Weight	File Name: 121329d07

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.70 +/- 0.19	0.32	1	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS1210098-1

APPENDIX H

Costs



**CONESTOGA-ROVERS
& ASSOCIATES**

200 W. Allegan Street, Suite 300
Plainwell, Michigan 49080-1397
Telephone: (269) 685-5181 Fax: (269) 685-5223
www.CRAworld.com

October 26, 2012

Reference No. 79976

Mr. Billy Ray
BHP Copper Inc.
8950 N Oracle Road Suite 150
Tucson, Arizona 85704

Dear Mr. Ray:

Re: Church Rock Site 1 - Road Remediation
Church Rock, New Mexico

Enclosed is Conestoga-Rovers & Associates' (CRA) invoice in the amount of \$58,700.00. This invoice has been completed in accordance with Contract/Agreement Number RCM-2011-031, Purchase Order No. 4500672909.

If you have any questions regarding this invoice please feel free to call me.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

K. A. Fuller for

Don Osterhout
Project Manager

Encl.

Equal
Employment Opportunity
Employer

Big Billion
8950 N. Oracle Rd., Suite 150
Tucson, AZ 85704
Attn: Billy Ray / Ken Black
Purchase Order No: 450667299
Contract No: RCN4-2014-031



INVOICE

Church Rock 1 Road Removal & Replacement
Church Rock, NM
CRA Project#: 075975
CRA Invoice No: 363207
October 26, 2012

Phase No.	Bid Item No.	Description	QUANTITY ORIGINAL BID	UM	BUDGET	QUANTITY ALL APPLICATIONS	QUANTITY THIS APPLICATION	Unit Rate	AMOUNT THIS APPLICATION	AMOUNT ALL APPLICATIONS
10	1.0	Mobilization	1	LS	\$19,400.00	1.00	1	\$19,400.00	\$19,400.00	\$19,400.00
15	1.5	Tents & Permanent Site & Controls	1	LS	\$32,000.00	1.00	1	\$32,000.00	\$32,000.00	\$32,000.00
20	2.0	Demolition	1	LS	\$19,400.00	0.00	0	\$19,400.00	\$0.00	\$0.00
25	2.5	Cattle Guard	1	T&M	\$35,000.00	0.00	0	\$35,000.00	\$0.00	\$0.00
30	3.0	Site Specific Training & Project Review	1	LS	\$2,500.00	1.00	1	\$2,500.00	\$2,500.00	\$2,500.00
40	4.0	Initial Survey	1	LS	\$4,800.00	1.00	1	\$4,800.00	\$4,800.00	\$4,800.00
45	5.0	Traffic Control	1	LS	\$5,750.00	0.00	0	\$5,750.00	\$0.00	\$0.00
56		Health & Safety (Bill Doyle)	1	T&M	\$0.00	0.00	0	\$0.00	\$0.00	\$0.00
60	6.0	Erosion Control - 36" Silty Fence	9,000	LF	\$16,920.00	0.00	0	\$1.88	\$0.00	\$0.00
65	7.0	Security	868	HR	\$14,061.60	0.00	0	\$16.20	\$0.00	\$0.00
70	8.0	Dust Control	38	DAY	\$71,954.00	0.00	0	\$1,893.00	\$0.00	\$0.00
75	9.0	Removal of Road & Surrounding Soils	17,000	CY	\$79,590.00	0.00	0	\$4.67	\$0.00	\$0.00
80	10.0	Re-Installation of General Fill	15,000	CY	\$59,250.00	0.00	0	\$3.95	\$0.00	\$0.00
85	11.0	Re-Installation of 1" Road Gravel	2,800	TON	\$75,880.00	0.00	0	\$27.10	\$0.00	\$0.00
87	12.0	Installation of Cover Material for Cyp	4,500	CY	\$1,07,760.00	0.00	0	\$23.95	\$0.00	\$0.00
88	13.0	Revegetation	12	ACRE	\$45,264.00	0.00	0	\$3,772.00	\$0.00	\$0.00
		TOTAL TO DATE								
									\$58,708.00	\$58,708.00

AMOUNT DUE THIS INVOICE

REMITTANCE ADDRESS
Conestoga-Rovers & Associates, Inc.
Department 406
PO Box 8000
Buffalo, NY 14267



**CONESTOGA-ROVERS
& ASSOCIATES**

200 W. Allegan Street, Suite 300
Plainwell, Michigan 49080-1397
Telephone: (269) 685-5181 Fax: (269) 685-5223
www.CRAworld.com

November 21, 2012

Reference No. 079976

Mr. Billy Ray
BHP Copper Inc.
8950 N Oracle Road Suite 150
Tucson, Arizona 85704

Dear Mr. Ray:

Re: Church Rock Site 1 - Road Remediation
Church Rock, New Mexico

Enclosed is Conestoga-Rovers & Associates' (CRA) invoice in the amount of \$178,915.50 for period ending October 28, 2012. This invoice has been completed in accordance with Contract/Agreement Number RCM-2011-031 and Purchase Order No. 4500672909. Lump sum items are being invoiced as percent complete and unit prices for the quantities complete.

Following is the description of work completed for each item requiring payment:

Item 5.0, Traffic Control. At the end of October, CRA had completed approximately 50% of the Church Rock road remediation. CRA is requesting payment for 50 percent on this item.

Item 6.0, Silt Fence. CRA is requesting payment for 4,000 lineal feet of silt fence that was installed.

Item 7.0, Security. Through the first 3 weeks of site work, Gallup Security has been on site approximately 310 hours. Backup for the dates and times that Gallup Security was on site for the entire project will be included in the last invoice.

Item 8.0, Dust Control. During the month of October, CRA performed dust control activities, and is requesting payment for 18 days.

Item 9.0, Removal of Road and Surrounding Soils. CRA began removing the road and surrounding material during the second week of October, and is requesting payment for 12,000 cubic yards of removal (this quantity estimate is based on truckloads of material being placed on the waste pile). CAD files and as-builts will be included in the last invoice, which will be used as backup for this item.

Equal
Employment Opportunity
Employer



**CONESTOGA-ROVERS
& ASSOCIATES**

November 21, 2012

Reference No. 79776

- 2 -

If you have any questions regarding this invoice please feel free to call me.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Don Osterhout
Project Manager

Encl.

blp billion
 8950 N. Oracle Rd, Suite 209
 Tucson, AZ 85704
 Attn: Billy Ray / Ken Black
 Purchase Order No: 450667249
 Contract No: RCM-2013-03

Church Rock 1 Road Removal & Replacement
 Church Rock, NM
 CRA Project#: 079976
 CRA Invoice No: 369454
 November 24, 2012



INVOICE

Phase No.	Item No.	Description	QUANTITY ORIGINAL BID	UM	BUDGET	QUANTITY ALL APPLICATIONS	QUANTITY THIS APPLICATION	Unit Rate	AMOUNT THIS APPLICATION	AMOUNT ALL APPLICATIONS
10	1.0	Mobilization	1	LS	\$19,400.00	1	0	\$19,400.00	\$0.00	\$19,400.00
15	1.5	Temp & Permanent Site & Controls	1	LS	\$52,000.00	1	0	\$52,000.00	\$0.00	\$52,000.00
20	2.0	Densification	1	LS	\$19,400.00	0	0	\$19,400.00	\$0.00	\$0.00
25	2.5	Cattle Guard	1	T&M	\$35,000.00	0	0	\$35,000.00	\$0.00	\$0.00
30	3.0	Site Specific Training & Project Review	1	LS	\$2,500.00	1	0	\$2,500.00	\$0.00	\$2,500.00
40	4.0	Initial Survey	1	LS	\$4,800.00	1	0	\$4,800.00	\$0.00	\$4,800.00
45	5.0	Traffic Control	1	LS	\$5,733.00	0.50	0.50	\$5,733.00	\$2,866.50	\$2,866.50
60	6.0	Erosion Control - 36" Sil Fence	9,000	LF	\$15,000.00	4,000	4,000	\$1.88	\$7,520.00	\$7,520.00
62	6.2	Wattle Installation	6,160	LF	\$31,169.60	0	0	\$5.06	\$0.00	\$0.00
65	6.5	Drum Control Blanket	22,500	SF	\$9,000.00	0	0	\$0.40	\$0.00	\$0.00
65	7.0	Security	568	HR	\$12,586.40	310	310	\$14.50	\$4,495.00	\$4,495.00
70	8.0	Dust Control	38	DAY	\$71,994.00	18	18	\$1,893.00	\$34,074.00	\$34,074.00
75	9.0	Removal of Road & Surrounding Soils	17,000	CY	\$186,169.42	12,000	12,000	\$10.83	\$129,960.00	\$129,960.00
80	10.0	Re-Installation of General Fill	15,000	CY	\$257,120.00	0	0	\$30.25	\$0.00	\$0.00
85	11.0	Re-Installation of 1" Road Gravel	2,800	TON	\$75,880.00	0	0	\$27.14	\$0.00	\$0.00
87	12.0	Installation of Cover Material for Cap	4,500	CY	\$136,120.00	0	0	\$30.25	\$0.00	\$0.00
88	13.0	Revegetation	12	ACTR	\$81,298.00	0	0	\$3,912.25	\$0.00	\$0.00
TOTAL TO DATE									\$178,915.50	\$297,015.50

AMOUNT DUE THIS INVOICE

REMITTANCE ADDRESS
 Conestoga-Rovers & Associates, Inc.
 Department 404
 PO Box 9108
 Buffalo, NY 14257

EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER



**CONESTOGA-ROVERS
& ASSOCIATES**

200 W. Allegan Street, Suite 300
Plainwell, Michigan 49080-1397
Telephone: (269) 685-5181 Fax: (269) 685-5223
www.CRAworld.com

January 11, 2013

Reference No. 079976

Mr. Billy Ray
BHP Copper Inc.
8950 N Oracle Road Suite 150
Tucson, Arizona 85704

Dear Mr. Ray:

Re: Church Rock Site 1 - Road Remediation
Church Rock, New Mexico

Enclosed is Conestoga-Rovers & Associates' (CRA) invoice in the amount of \$737,373.74 for period ending November 25, 2012. This invoice has been completed in accordance with Contract/Agreement Number RCM-2011-031 and Purchase Order No. 4500672909. Lump sum items are being invoiced as percent complete and unit prices for the quantities complete.

Following is the description of work completed for each item requiring payment:

Item 2.0, Demobilization. CRA has completed the project and demobilized off site.

Item 2.5, Cattle Guard. CRA completed the installation of the cattle guard and associated items such as fencing and rip rap installation.

Item 5.0, Traffic Control. CRA has completed the project and is requesting full payment for this item.

Item 6.5, Wattle Installation. CRA has completed installation of 6,160 lineal feet of wattles.

Item 6.6, Erosion Control Blanket. CRA has completed installation of 22,500 square feet of erosion control blanket.

Item 7.0, Security. Gallup Security Service was on site for a total of 558 hours for this invoicing period. Back up for this item has been included.

Item 8.0, Dust Control. During the month of November, CRA performed dust control activities, and is requesting payment for 19 days.

Equal
Employment Opportunity
Employer



**CONESTOGA-ROVERS
& ASSOCIATES**

January 11, 2012

Reference No. 79776

- 2 -

Item 9.0, Removal of Road and Surrounding Soils. CRA has based quantities associated with this item on our survey information. CAD files and as-builts have been included with this invoice as backup for this item.

Item 10.0, Re-Installation of General Fill. CRA has based quantities associated with this item on our survey information. CRA has based quantities associated with this item on our survey information.

Item 11.0, Re-Installation of Road Gravel. CRA has included weight tickets with this invoice as backup for this item.

Item 12.0, Installation of Cover Material for Cap. CRA has based quantities associated with this item on our survey information. CAD files and as-builts have been included with this invoice as backup for this item.

Item 13.0, Revegetation. CRA has completed the application of the hydromulch and seeding. CAD files have been included with this invoice as backup for this item.

If you have any questions regarding this invoice please feel free to call me.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Don Osterhout
Project Manager

Encl.

Bsp Billions
 8959 N. Oracle Rd., Suite 150
 Tucson, AZ 85704
 Attn: Billy Ray / Ken Black
 Purchase Order No: 4514672509
 Contract No: BCM-2017-401
 Church Rock 1 Road Removal & Replacement
 Church Rock, NM
 CBA Project#: 079976
 CBA Invoice No: 376691
 January 11, 2013



INVOICE

Phase No.	Bid Item No.	Description	QUANTITY ORIGINAL	UM	BUDGET	QUANTITY ALL APPLICATIONS	QUANTITY THIS APPLICATION	Unit Rate	AMOUNT THIS APPLICATION	AMOUNT ALL APPLICATIONS
30	1.0	Mobilization	1	LS	\$19,400.00	1	0	\$19,400.00	\$0.00	\$19,400.00
15	1.5	Temp & Permanent Sign & Controls	1	LS	\$82,000.00	1	0	\$82,000.00	\$0.00	\$82,000.00
20	2.0	Demobilization	1	LS	\$19,400.00	1	1	\$19,400.00	\$19,400.00	\$19,400.00
25	2.2	Cattle Guard	1	T&M	\$15,000.00	1	1	\$80,420.00	\$80,420.00	\$80,420.00
27	2.5	Culvert Installation	1	LS	\$8,594.00	1	1	\$8,594.00	\$8,594.00	\$8,594.00
39	3.0	Site Specific Training & Project Review	1	LS	\$2,500.00	1	0	\$2,500.00	\$0.00	\$2,500.00
40	4.0	Soil Survey	1	LS	\$4,800.00	1	0	\$4,800.00	\$0.00	\$4,800.00
45	5.0	Traffic Control	1	LS	\$8,793.00	1	0.59	\$3,793.00	\$2,865.50	\$5,793.00
60	6.0	Erosion Control - 10' Soil Fence	9,000	LF	\$14,000.00	4,000	0	\$1.88	\$0.00	\$7,020.00
62	6.5	Wattle Installation	6,160	LF	\$31,169.60	6,160	6,160	\$5.06	\$31,169.60	\$31,169.60
63	6.6	Erosion Control Bucket	22,500	BF	\$5,000.00	22,500	22,500	\$0.40	\$9,000.00	\$9,000.00
65	7.0	Security	640	HR	\$72,806.00	785.50	495.50	\$14.50	\$6,894.75	\$11,589.75
70	8.0	Dust Control	58	DAY	\$77,994.00	57	19	\$1,899.00	\$35,957.00	\$70,041.00
75	9.0	Removal of Road & Surrounding Soils	17,000	CY	\$188,160.42	17,974	5,574	\$10.83	\$60,200.42	\$188,160.42
80	10.0	Re-formation of General Fill	13,000	CY	\$237,125.00	13,673	13,673	\$23.92	\$325,404.16	\$325,404.16
85	11.0	Re-formation of 1' Road Gravel	2,400	TON	\$75,800.00	2,099.46	2,099.46	\$27.10	\$56,694.91	\$56,694.91
87	12.0	Installation of Concrete Material for Cap	4,500	CY	\$136,125.00	3,570	3,570	\$25.92	\$92,534.40	\$92,534.40
88	13.0	Revegetation	12	ACRE	\$31,258.00	8	8	\$3,912.25	\$31,258.00	\$31,258.00
TOTAL TO DATE									\$737,373.74	\$737,373.74

AMOUNT DUE THIS INVOICE

REMITTANCE ADDRESS
 Conestoga-Rovers & Associates, Inc.
 Department 66
 PO Box 8006
 Buffalo, NY 14257

EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER



RT 2 BOX 52
GALLUP, NM 87301
OFFICE: (505) 726-1740 or 1-866-228-5245
FAX: (505) 726-1741

Invoice

Date	Invoice #
11/15/2012	56748

48 0003464

Bill To
CRA Attn: Accounts Payable 200 W Allegan St, Suite 300 Plainwell, MI 49080

Ship To

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project														
4052221	Net 07	MM	11/15/2012		Gallup															
Quantity	Item Code	Description			Price Each	Amount														
2,089.48	Dirt & Gravel ...	2089.48 ton Base Course (11.13.12, 11.14.12, 11.15.12) *****REVISED INVOICE***** (Wrong price per ton) Sales Tax <table border="1"><tr><th colspan="2">Plainwell Approval of Invoice</th></tr><tr><td>Project #</td><td>079976-85</td></tr><tr><td>Date</td><td>11-20-12</td></tr><tr><td>Approval</td><td>Do</td></tr><tr><td>G/L Coding</td><td>5660001</td></tr><tr><td>PO #</td><td>4052221</td></tr><tr><td>Org Code</td><td>4013</td></tr></table>			Plainwell Approval of Invoice		Project #	079976-85	Date	11-20-12	Approval	Do	G/L Coding	5660001	PO #	4052221	Org Code	4013		
Plainwell Approval of Invoice																				
Project #	079976-85																			
Date	11-20-12																			
Approval	Do																			
G/L Coding	5660001																			
PO #	4052221																			
Org Code	4013																			
					Total															

40KACRBN



GALLUP SECURITY SERVICE

#5 Idaho Circle • Gallup, NM 87301
505-722-7645

Invoice

18798

PROVIDING PROFESSIONAL SERVICE

TO:

DATE: 11-3-2012

ADDRESS:

(CONGREGATION - RIVERS ASSOCIATION (CRA))

CITY:

CHURCH ROCK, NM

STATE

ZIP

DATE	DAY	START	ENDING	HOURS
10/2	TUE ^{TRAINING}	4:30 PM	5:30 PM	3
10/2	TUE	5:30 PM	6:30 PM	13
10/3	WED	5:30 PM	6:30 AM	13
10/4	THUR	5:30 PM	6:30 AM	13
10/5	FRI	5:30 PM	6:30 AM	13
10/6	SAT	9:30 AM	9:30 AM	24
10/7	SUN	9:30 AM	6:30 AM	21
10/8	MON	5:30 PM	6:30 AM	13
10/9	TUE	5:30 PM	6:30 AM	13
10/10	WED	5:30 PM	6:30 AM	13
10/11	THUR	5:30 PM	6:30 AM	13
10/12	FRI	5:30 PM	6:30 AM	13
10/13	SAT	9:30 AM	9:30 AM	24
10/14	SUN	9:30 AM	6:30 AM	21
10/15	MON	5:30 PM	6:30 AM	13
10/16	TUE	5:30 PM	6:30 AM	13
10/17	WED	5:30 PM	6:30 AM	13
10/18	THUR	5:30 PM	6:30 AM	13
10/19	FRI	5:30 PM	6:30 AM	13
10/20	SAT	9:30 AM	9:30 AM	24
10/21	SUN	9:30 AM	6:30 AM	21

Thank You



GALLUP SECURITY SERVICE

#5 Idaho Circle • Gallup, NM 87301
505-722-7645

Invoice

18799

PROVIDING PROFESSIONAL SERVICE

48 0003450

TO:

CONCESTA-ROWE ASSOC. (CRA)

DATE: 11-3-2012

ADDRESS:

CITY:

STATE:

ZIP:

40 GALSEC

DATE	DAY	START	ENDING	HOURS
10/20	Mon	530 AM	630 AM	13
10/23	Tue	530 AM	630 AM	13
10/24	Wed	530 AM	630 AM	13
10/25	Thur	530 AM	630 AM	13
10/26	Fri	530 AM	630 AM	13
10/27	Sat	930 AM	930 AM	24
10/28	Sun	930 AM	630 AM	21
10/29	Mon	530 AM	630 AM	13
10/30	Tue	530 AM	630 AM	13
10/31	Wed	530 AM	630 AM	13
				469

Plainwell

Approval Of Invoice

105

Project # 79976 469 Hours X # - PER HOUR = 409.11

Date 11/12/12

.8512 TAX

Approval DO

S/L Coding 5660001

PO # 4052318

Org Code 4013

45

Thank You

079976-65



GALLUP SECURITY SERVICE

#5 Idaho Circle • Gallup, NM 87301
505-722-7645

Invoice

18861

PROVIDING PROFESSIONAL SERVICE

TO:

Crestage Defense Assoc. (CRA)

DATE: Nov. 27 2012

ADDRESS:

CITY:

poi Churchrock, N.M.

STATE

ZIP

11-1	Thurs	530 PM	630 AM	13
11-2	Fri	530 PM	630 AM	13
11-3	Sat	930 AM	930 AM	24
11-4	Sun	930 AM	630 AM	21
11-5	Thurs	530 PM	630 AM	13
11-6	Fri	530 PM	630 AM	13
11-7	Sat	530 PM	630 AM	13
11-8	Sun	530 PM	630 AM	13
11-9	Fri	530 PM	630 AM	13
11-10	Sat	930 AM	930 AM	24
11-11	Sun	930 AM	630 AM	21
11-12	Thurs	530 PM	630 AM	13
11-13	Fri	530 PM	630 AM	13
11-14	Sat	530 PM	430 AM	13
11-15	Sun	530 PM	630 AM	13
11-16	Fri	530 PM	630 AM	13
11-17	Sat	930 AM	930 AM	24
11-18	Sun	930 AM	630 AM	21
11-19	Thurs	530 PM	630 AM	13
11-20	Fri	530 PM	600 AM	12.5
				316.5

Thank You



GALLUP SECURITY SERVICE

#5 Idaho Circle • Gallup, NM 87301
505-722-7645

PROVIDING PROFESSIONAL SERVICE

Invoice

18861

TO:

Christina - Dyer Assoc. (CRA)

DATE: Nov. 29 2012

ADDRESS:

CITY:

Per Churchman, NM

STATE

ZIP

314.5 Hours x \$

Per Hour

314.50 11

Line 2

Plainwell	
Approval Of Invoice	
Project #	079926-65
Date	11-27-12
Approval	REC FOR DO
G/L Coding	5660001
PO #	4052316
Org Code	4013

(45)

Total hours 785.5

Thank You



SENE CONSULTANTS LIMITED

121 Granton Drive
Unit No. 12
Richmond Hill, Ontario
Canada L4B 3N4
Tel: (905) 764-9380
Fax: (905) 764-9386

January 31, 2013
Project No: 350180-203
Invoice No: 31161

Rio Algom Mining LLC
Attn: Rio Algom Mining-NM Highway
605 & 509
Grants, NM 87020
United States

Project 350180-203 Church Rock Red Water Pond Road Remedial Action BHP
COPPER INC. P.O. 4500672911

Email Ken.Black@bhpbilliton.com cc GMV then Do Not Mail

Professional Services for the period ending December 31, 2012

Phase 200 Field Program

Professional Personnel

	Hours	Rate	Amount	
Liles, Darrell	6.00	175.00	1,050.00	
Stager, Ronald	1.50	160.00	240.00	
Totals	7.50		1,290.00	
Total Labour				1,290.00

Reimbursable Expenses

Lab Charges – CAD \$342.58			342.58	
Total Reimbursables		1.0 times	342.58	342.58
		Total this Phase		\$1,632.58

Phase 300 Reporting

Professional Personnel

	Hours	Rate	Amount	
Lowe, Leo	1.00	185.00	185.00	
Totals	1.00		185.00	
Total Labour				185.00
		Total this Phase		\$185.00

Total this Invoice in U.S. \$1,817.58

Billings to Date

	Current	Prior	Total
Labor	1,475.00	154,689.38	156,164.38
Consultant	0.00	16,757.24	16,757.24
Expense	342.58	29,875.61	30,218.19
Unit	0.00	2,047.65	2,047.65
Totals	1,817.58	203,369.88	205,187.46

PAYMENT DUE UPON RECEIPT OF INVOICE

Page 1

HST No. 89892 0277 RT

Please quote our invoice and project numbers on your remittance.



SENES CONSULTANTS LIMITED

121 Granton Drive
Unit No. 12
Richmond Hill, Ontario
Canada L4B 3N4
Tel: (905) 764-9380
Fax: (905) 764-9386

December 31, 2012

Project No: 350180-203

Invoice No: 31038

Rio Algom Mining LLC
Attn: Rio Algom Mining-NM
Highway 605 & 509
Grants, NM 87020
United States

Project 350180-203 Church Rock Red Water Pond Road Remedial Action BHP
COPPER INC. P.O. 4500672911

Email Ken.Black@bhpbilliton.com cc GMW then Do Not Mail

Professional Services for the period ending November 30, 2012

Phase	100	Program Planning & Preparation
Professional Personnel		
	Hours	Rate
Chambers, Douglas	.50	220.00
Wiatzka, Gerd	1.50	200.00
Totals	2.00	410.00
Total Labour		410.00
Total this Phase		\$410.00

Phase	200	Field Program
Professional Personnel		
	Hours	Rate
Liles, Darrell	5.00	175.00
Stager, Ronald	35.50	160.00
Wiatzka, Gerd	.50	200.00
Wilson, Michael	35.50	67.50
Totals	76.50	9,051.25
Total Labour		9,051.25

Reimbursable Expenses		
Travel		1,469.54
Lab Charges		5,924.00
Total Reimbursables	1.0 times	7,393.54
Total this Phase		\$16,444.79

Phase 300 Reporting
Professional Personnel

PAYMENT DUE UPON RECEIPT OF INVOICE

HST No. 89892 0277 RT

Please quote our invoice and project numbers on your remittance.



SENE CONSULTANTS LIMITED

121 Granton Drive
Unit No. 12
Richmond Hill, Ontario
Canada L4B 3N4
Tel: (905) 764-9380
Fax: (905) 764-9386

Project	350180-203	RAML- Church Rock RWPR Remedial Action			Invoice	31038
			Hours	Rate	Amount	
Lowe, Leo			3.00	185.00	555.00	
	Totals		3.00		555.00	
	Total Labour					555.00
				Total this Phase		\$555.00
				Total this Invoice in U.S.		\$17,409.79

Billings to Date

	Current	Prior	Total
Labor	10,016.25	144,673.13	154,689.38
Consultant	0.00	16,757.24	16,757.24
Expense	7,393.54	22,482.07	29,875.61
Unit	0.00	2,047.65	2,047.65
Totals	17,409.79	185,960.09	203,369.88



SENE CONSULTANTS LIMITED

121 Granton Drive
Unit No. 12
Richmond Hill, Ontario
Canada L4B 3N4
Tel: (905) 764-9380
Fax: (905) 764-9386

November 29, 2012
Project No: 350180-203
Invoice No: 30826

Rio Algom Mining LLC
Attn: Rio Algom Mining-NM
Highway 605 & 509
Grants, NM 87020
United States

Project 350180-203 Church Rock Red Water Pond Road Remedial Action
BHP COPPER INC. P.O. 4500672911

Professional Services for the period ending October 31, 2012

Phase	100	Program Planning & Preparation		
Professional Personnel				
		Hours	Rate	Amount
Chambers, Douglas		7.50	220.00	1,650.00
Chung, Phillip		.50	65.00	32.50
Wiatzka, Gerd		7.00	200.00	1,400.00
Wilson, Michael		9.50	67.50	641.25
Totals		24.50		3,723.75
Total Labour				3,723.75
Unit Billing				
Printing Colour				1.35
Total Units		1.0 times	1.35	1.35
Total this Phase				\$3,725.10

Phase	200	Field Program		
Professional Personnel				
		Hours	Rate	Amount
Draine, Amanda		1.00	95.00	95.00
Liles, Darrell		220.00	175.00	38,500.00
Lowe, Leo		2.00	185.00	370.00
Stager, Ronald		223.50	160.00	35,760.00
Wiatzka, Gerd		58.00	200.00	11,600.00
Wilson, Michael		79.50	67.50	5,366.25
	Totals	584.00		91,691.25
	Total Labour			91,691.25
Reimbursable Expenses				
Travel – CAD \$3,069.22				3,066.59
Lab Charges				3,730.00

Continued on Page 2

PAYMENT DUE UPON RECEIPT OF INVOICE

GST No. 89892 0277 RT

Please quote our invoice and project numbers on your remittance.

**SENE CONSULTANTS LIMITED**

121 Granton Drive
Unit No. 12
Richmond Hill, Ontario
Canada L4B 3N4
Tel: (905) 764-9380
Fax: (905) 764-9386

Project	350180-203	RAML- Church Rock RWPR Remedial Action	Invoice	30826
	Employee Expenses – US \$9,100.31		9,100.31	
	Employee Expenses – CAD \$3,307.42		3,344.51	
	SENE Equipment Rental – CAD \$100.00		99.91	
	Total Reimbursables	1.0 times	19,341.32	19,341.32
		Total this Phase		\$111,032.57

Phase 300 Reporting

Professional Personnel

	Hours	Rate	Amount
Brown, Steven	1.00	195.00	195.00
Chung, Phillip	2.00	65.00	130.00
Hoosain, Diana	3.50	75.00	262.50
McCaffrey, Donald	2.00	85.00	170.00
Totals	8.50		757.50
Total Labour			757.50

Reimbursable Expenses

Courier			190.17
Total Reimbursables	1.0 times	190.17	190.17

Unit Billing

Printing Black & White			121.20
Printing Colour			108.00
Recordable CDs			3.00
Total Units	1.0 times	232.20	232.20
	Total this Phase		\$1,179.87

Total this Invoice in U.S. \$115,937.54

Billings to Date

	Current	Prior	Total
Labor	96,172.50	48,500.63	144,673.13
Consultant	0.00	16,757.24	16,757.24
Expense	19,531.49	2,950.58	22,482.07
Unit	233.55	1,814.10	2,047.65
Totals	115,937.54	70,022.55	185,960.09

**SENE CONSULTANTS LIMITED**

121 Granton Drive
Unit No. 12
Richmond Hill, Ontario
Canada L4B 3N4
Tel: (905) 764-9380
Fax: (905) 764-9386

October 19, 2012
Project No: 350180-203
Invoice No: 30604

Rio Algom Mining LLC
Attn: Rio Algom Mining-NM
Highway 605 & 509
Grants, NM 87020
United States

Project 350180-203 Church Rock Red Water Pond Road Remedial Action
BHP COPPER INC. P.O. 4500672911

Professional Services for the period ending September 30, 2012

Phase 100 Program Planning & Preparation

Professional Personnel

	Hours	Rate	Amount	
Brown, Steven	3.00	195.00	585.00	
Chambers, Douglas	3.00	220.00	660.00	
Gravelle, Charles	1.00	145.00	145.00	
Stager, Ronald	25.00	160.00	4,000.00	
Wiatzka, Gerd	79.00	200.00	15,800.00	
Wilson, Michael	10.00	67.50	675.00	
Totals	121.00		21,865.00	
Total Labour				21,865.00

Reimbursable Expenses

Employee Expenses – D. Liles			469.18	
Total Reimbursables	1.0 times	469.18		469.18

Consultants

S. Lynn Bamberg, LLC Invoice 0912-3			3,420.00	
Total Consultants	1.0 times	3,420.00		3,420.00
Total this Phase				\$25,754.18

Phase 200 Field Program

Professional Personnel

	Hours	Rate	Amount	
Liles, Darrell	20.00	175.00	3,500.00	
Totals	20.00		3,500.00	
Total Labour				3,500.00

Reimbursable Expenses

Lab Charges – ALS Environmental invoice numbers 54094 and 54095			1,800.00	
---	--	--	----------	--

PAYMENT DUE UPON RECEIPT OF INVOICE

HST No. 89892 0277 RT

Please quote our invoice and project numbers on your remittance.

**SENE CONSULTANTS LIMITED**

121 Granton Drive
Unit No. 12
Richmond Hill, Ontario
Canada L4B 3N4
Tel: (905) 764-9380
Fax: (905) 764-9386

Project	350180-203	RAML- Church Rock RWPR Remedial Action	Invoice	30604
Total Reimbursables		1.0 times	1,800.00	1,800.00
Total this Phase			\$5,300.00	

Phase 300 Reporting
Professional Personnel

	Hours	Rate	Amount	
Chung, Phillip	10.50	65.00	682.50	
Flemming, Paul	.50	105.00	52.50	
Fonseca, Joan	.75	75.00	56.25	
Halbert, Leigh	.50	85.00	42.50	
Hoosain, Diana	14.25	75.00	1,068.75	
Lowe, Leo	3.50	185.00	647.50	
McCaffrey, Donald	6.00	85.00	510.00	
Totals	36.00		3,060.00	
Total Labour				3,060.00

Reimbursable Expenses

Courier CAD \$626.62			634.24	
Employee Expenses – P. Chung CAD \$36.52			36.96	
SENE Supplies CAD \$10.08			10.20	
Total Reimbursables	1.0 times	681.40	681.40	

Unit Billing

Printing Black & White			1,098.60	
Printing Colour			715.50	
Total Units	1.0 times	1,814.10	1,814.10	
Total this Phase			\$5,555.50	

Total this Invoice *IN U.S.* **\$36,609.68**

Billings to Date

	Current	Prior	Total
Labor	28,425.00	20,075.63	48,500.63
Consultant	3,420.00	13,337.24	16,757.24
Expense	2,950.58	0.00	2,950.58
Unit	1,814.10	0.00	1,814.10
Totals	36,609.68	33,412.87	70,022.55

**SENE CONSULTANTS LIMITED**

121 Granton Drive
Unit No. 12
Richmond Hill, Ontario
Canada L4B 3N4
Tel: (905) 764-9380
Fax: (905) 764-9386

September 21, 2012

Project No: 350180-203

Invoice No: 30489

Rio Algom Mining LLC
Attn: Rio Algom Mining-NM
Highway 605 & 509
Grants, NM 87020
United States

Project 350180-203 Church Rock Red Water Pond Road Remedial Action BHP
COPPER INC. P.O. 4500672911

Professional Services for the period ending August 31, 2012

Phase 100 Program Planning & Preparation

Professional Personnel

	Hours	Rate	Amount
Chambers, Douglas	42.00	220.00	9,240.00
Lowe, Leo	3.50	185.00	647.50
Stager, Ronald	32.50	160.00	5,200.00
Wiatzka, Gerd	12.50	200.00	2,500.00
Wilson, Michael	19.25	67.50	1,299.38
Totals	109.75		18,886.88

Total Labour

18,886.88

Total this Phase

\$18,886.88

Phase 200 Field Program

Consultants

S. Lynn Bamberg, LLC			7,636.07
Elliott Land Surveying			3,274.20
Dinetahdoo CRM			2,426.97
Total Consultants	1.0 times	13,337.24	13,337.24

Total this Phase

\$13,337.24

Phase 300 Reporting

Professional Personnel

	Hours	Rate	Amount
Brown, Steven	1.00	195.00	195.00
Fonseca, Joan	9.50	75.00	712.50
Hoosain, Diana	3.75	75.00	281.25
Totals	14.25		1,188.75

PAYMENT DUE UPON RECEIPT OF INVOICE

HST No. 89892 0277 RT

Please quote our invoice and project numbers on your remittance.



SENE CONSULTANTS LIMITED

121 Granton Drive
Unit No. 12
Richmond Hill, Ontario
Canada L4B 3N4
Tel: (905) 764-9380
Fax: (905) 764-9386

Project	350180-203	RAML- Church Rock RWPR Remedial Action	Invoice	30489
Total Labour				1,188.75
			Total this Phase	\$1,188.75
			Total this Invoice	\$33,412.87

Billings to Date

	Current	Prior	Total
Labor	20,075.63	0.00	20,075.63
Consultant	13,337.24	0.00	13,337.24
Totals	33,412.87	0.00	33,412.87

PAYMENT DUE UPON RECEIPT OF INVOICE

Page 2

HST No. 89892 0277 RT

Please quote our invoice and project numbers on your remittance.

Attorney Costs

Category	Individual	Hours	Subtotal	Total
Communications with EPA regarding UAO and Work Plan revisions; Communications with Client regarding UAO response strategy; Communications with Navajo				\$ 31,312.50
	LJN	26.7	\$13,350.00	
	MJK	47.9	\$17,962.50	
Legal Research and Writing Regarding the Basis to Challenge the UAO and the Reimbursement Process				\$ 13,889.50
	MJK	5.7	\$ 2,137.50	
	MMK	21.9	\$ 6,232.00	
	MAH	23.0	\$ 5,520.00	
Factual Development				\$ 8,059.50
	MJK	4.8	\$ 1,837.50	
	MAH	21.1	\$ 5,595.00	
	NEK	0.5	\$ 95.00	
	WGJ	5.6	\$ 532.00	
GRAND TOTAL		157.2		\$ 53,261.50